2010 Technical Update Book

TECHNICAL UPDATE BOOK and the DEALER CERTIFICATION PROGRAM (for North American dealer only):

The Technician Level Training is mandatory for your dealership to achieve the Platinum Certified status.

ATTENTION: "Technician Level Training" is described as one technician (with a BRPTI profile and access) who has completed the Technical DVD exams 1-5 PLUS the most current Technical Update Book exam in BRPTI. To complete this criteria in the Dealer Certification Program, this Technical Update Book exam must be completed with a passing score of 75% or better in BRPTI.

Technician Level Training: Each technician that has completed their Ski-Doo Technician Level must complete the annual Technical Update Book exam in BRPTI to maintain their individual status as a BRP Technician and to be eligible for their Certified Technician Level.

LEGAL DEPOSIT:
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NATIONAL LIBRARY OF CANADA 2009

PRINTED IN CANADA
TECHNICAL PUBLICATIONS
BOMBARDIER RECREATIONAL PRODUCTS INC. (BRP)
VALCOURT (QUEBEC) CANADA

STEP BY STEP INSTRUCTIONS ON HOW TO DO THE EXAMS ON BRPTI :

(for North American dealer only)

If you are new to BOSSWeb and BRPTI OR you have a BRPTI login but not set up as a user in BOSSWeb:

– Ask your dealership's BOSSWeb administrator to create your profile in BOSSWeb by making sure that all the are completed and the Training, BRPTI role BRP Dealer Employee BRPTI responsibility is checked off in your profile.
– **If you have a BRPTI login**, your BOSSWeb administrator must make sure your first name, last name, date of birth and gender are the same in BOSSWeb as they are in BRPTI.

If you already have a personal login to BOSSWeb and have BRPTI access:

1. Access BRPTI via BOSSWeb / Training / BRPTI.
2. In the "Resources" box, click on "Courses".
3. Check "English", click on "Start search — GO".
4. Find **2010 Ski-Doo Technical Update** in the list of courses.
5. Click on the Info/Enroll icon at the right of the course name.
6. Click on "Enroll" at the bottom right of the screen.
7. Click on "OK" in the pop-up box to enroll to this course.
8. Click on "updated learning plan" in the confirmation paragraph or click on "Home" in the "Resources" box. This will take you back to your home page where you will see the course (exam) is now in your "Training Activities TO COMPLETE" section.
9. In the "Training Activities TO COMPLETE" section, click on the **2010 Ski-Doo Technical Update** course title to start your exam.

– To pass the Technical Update Exam, a technician must pass with a **75% or greater** score.
– To achieve or maintain Technician Level status, a technician must have completed all applicable Technician Level Exams after viewing the DVD series, and pass all Update exams for the appropriate products carried by the dealership.
– To qualify for the Certified Technician Level course, a technician must first achieve and maintain Technician Level Status.
– To maintain Certified Technician Status, a technician must stay current by passing all subsequent Technical Update Exams for the product lines completed at the Certified Technician hands-on school.
– To qualify for Master Level Status, a technician must meet the criteria below.

Master Technician Level criteria:

– Minimum of 5 years as a Powersports Industry mechanic.
– Minimum of 2 years at your current BRP dealership.
– Maintain Certified Technician Level for at least one year.
– 90% or higher, on 1st completed score, on Technical Update exam(s).

If you need assistance, contact:

For accesses and logins contact the BOSSWeb help desk:		If you need assistance with the exams or use of the BRPTI application, contact:	
USA	800 366-6992 (4)	USA	800 366-6992 (5-3)
Canada	800 361-9980 (4)	Canada	800 361-9980 (5-3)

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General Information

The objective of Section 1 is to make contacts between dealers and BRP as easy as possible.

In this section you will find the most important phone numbers, key contact names and the latest update procedures to help you being more efficient.

IT'S EASY TO REACH US

NORTH AMERICAN SERVICE TOLL-FREE NUMBER

NOTE: These references are only for North American dealers. If you are calling from a country outside of Canada or the United States please refer to the *DEALER TECHNICAL SUPPORT* section in this book.

BRP Network Support Only	From Canada 800 361-9980 From USA 800 366-6992		
	SERVICE	SHORTCUT PATH USING PHONE KEYS	
Dial the number. Enter you BRP dealer number to access your support services. By entering your dealer number, it will secure your dealership access to your Network Support Services by not allowing non-authorised users in. Listen to the first menu, and choose the **Service** by pressing the number key on your telephone. Listen to the second menu to choose the appropriate **Subject** category. NOTE: Calls from a rotary phone will be directed to an operator who will then transfer your call.	Parts, Accessories and Clothing (PAC)	PAC Analysts ETA or BO details	1-1
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		Ski-Doo – All other questions	2-1-4
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Important Note: The Network Support Center is for **dealer use only**.
Retail Canadian Customers can reach Customer Assistance by dialling 819 566-3366.
Retail American Customers can reach Customer Assistance by dialling 715 848-4957.

BEFORE YOU CALL THE SERVICE DEPARTMENT

Be prepared

The BRP Service Department values your call. In fact, **you are the reason that we are here!** Your input and information are vital to our department, and accuracy is critical. In an effort to provide the best service to you, we ask that you observe the following guidelines:

Review the service material that you already have

Check your service library for any publications that may assist you with your problem. Often the answer is already in your hands in the form of manuals, bulletins, spec books, technical update books, What's New letters, etc.

Check BOSSWeb

All bulletins and campaigns can be found on BOSSWeb. Verify the unit history on each vehicle to see if there are any pending campaigns.

Have vital information close at hand

Many times you will be asked for your **dealer number,** the vehicle model, **serial number** and the **vehicle mileage/hours.** You will also be asked if there is already a **call identification number** logged on the vehicle or customer in question. Not having this information readily available is very common and slows the system down for everybody.

Verify the customer's complaint

If you are contacting your Service Representative for assistance, you should be able to describe the problem accurately, with factual information. Make sure the vehicle does what the customer says it does; when he says it does it. If you cannot verify a problem, do not work on the vehicle. Do not attempt needless repairs.

Verify the warranty status

Is the unit in warranty, out of warranty, or covered by a BEST contract (if applicable)? If it is covered by BEST, have the contract number available as well as the maintenance history if available.

Take names and Call ID

Every BRP representative will identify themselves when answering your call. Do not complete the call without noting who you spoke with. Your call may be logged in the computer system. Ask for the call I.D. number and put it on the repair order.

DEALER TECHNICAL SUPPORT

CANADA AND USA

Call the Service Representatives to get technical assistance and to get a Warranty authorization number. Remember these are for DEALER USE ONLY.			
	Phone	Fax	E-mail
Richard Klein Coordinator	715 847 6836	715 847-6879	richard.klein@brp.com
Service Representatives			
USA	800 366-6992	715 847-6879	—
Canada	800 361-9980	819 566-3062	
Alain Doucet (English and French)			service@brp.com
Bill Phare (English)			
Claude Beaudoin (English and French)			
Dany Davey (English and French)			
Dennis Sawyer (English and French)			
Gordy Radtke (English)			
Kurt Otteson (English)			
John Lofy (English)			
Ken Gauthier (English and French)			
Mike Carter (English)			
Paul Literski (English)			
Perry Redeker (English)			
Richard Cossette (English and French)			
Robert Wegmueller (English)			
Tom Lawrence (English)			

BRP AUSTRALIA

	PHONE	FAX	E-MAIL
Riley Tolmay Service Manage	+61 2 9794 6603	+61 2 9794 6651	riley.tolmay@brp.com

BRPED DISTRIBUTORS EUROPE, MIDDLE EAST AND AFRICA

	PHONE	FAX	E-MAIL
Andreas Klopfleisch Service Manager	+49 2174 7836 15	+49 2174 7836 22	andreas.klopfleisch@brp.com
Helder Amaral Service Manager	+41 21 318 7866	+41 21 318 78 61	helder.amaral@brp.com

BRP BRAZIL, CARIBBEAN AND LATIN AMERICA

	PHONE	FAX	E-MAIL
Ednilson Beneli Service Manager	+1 954 846 1450	+1 954 846 1476	ednilson.beneli@brp.com

BRP JAPAN

	PHONE	FAX	E-MAIL
Makoto Numajiri Service Manager	+81 44 200 1431	+81 44 200 1432	makoto.numajiri@brp.com

BRP SCANDINAVIA

	PHONE	FAX	E-MAIL
Geir Kristensen Service Manager (Norway, Sweden)	+47 78 44 35 00	+47 78 44 35 01	gier.kristensen@brp.com
Jorma Kukkola Service Manage (Finland, Central and Eastern Europe, Russia and CIS)	+35 8 16 3208 132	+35 8 16 3420 316	jorma.kukkola@brp.com

BRP UK IRELAND

	PHONE	FAX	E-MAIL
Phil Durant	+44 1202 812 108	+44 1202 812 101	phil.durant@brp.com

OTHER COUNTRY DISTRIBUTOR AFTER SALES SUPPORT (SWABR)

	PHONE	FAX	E-MAIL
Robert Gariup Service Manager International			robert.gariup@brp.com
Ronald Hurner International Service Coordinator Sea-Doo/Ski-Doo			ronald.hurner@brp.com

CUSTOMER ASSISTANCE CENTERS

CALL THE CUSTOMER ASSISTANCE CENTER

Although customers have the option to call us at the numbers and address provided below, calling in for your customer on any customer issues or questions is always the best alternative for your customer. For dealers in Canada, simply call 1 800 361-9980 / in the USA 1 800 366-6992, and press option 6 to speak to a customer representative.

CUSTOMER ASSISTANCE CENTER FOR NORTH AMERICA

		PHONE	FAX
For Retail Customers	In USA	715 848-4957	819 566-3062
	In Canada	819 566-3366	

Mailing address for Retail Customers:
BRP Consumer Service Group
75, J.-A. Bombardier Street
Sherbrooke,
Québec, Canada
J1L 1W3

CUSTOMER ASSISTANCE FOR COUNTRIES WITHIN EUROPE, MIDDLE EAST, AFRICA, RUSSIA AND CIS

Please contact our European office: BRP EUROPE N.V.

FOR RETAIL CUSTOMERS	PHONE	+ 32-9-218-26-00

Mailing address for Retail Customers:
Consumer Service Center
Skaldenstraat 125
9042 Gent
Belgium

CUSTOMER ASSISTANCE FOR SCANDINAVIAN COUNTRIES

Please contact our Finland office: BRP FINLAND OY

FOR RETAIL CUSTOMERS	PHONE	+ 358 16 3208 111

Mailing address for Retail Customers:
Service Department
Ahjotie 30
Fin-96320 Rovaniemi
Finland

CUSTOMER ASSISTANCE FOR ALL OTHER COUNTRY

Please contact your local distributor or our North America office: Bombardier Recreational Products Inc.

		PHONE	FAX
For Retail Customers	In USA	715 848-4957	819 566-3062
	In Canada	819 566-3366	
Mailing address for Retail Customers: BRP Consumer Service Group 75, J.-A. Bombardier Street Sherbrooke, Québec, Canada J1L 1W3			

LEGAL COORDINATOR

NOTE: Only for North American dealer. Other countries please contact your Service Representative.

	PHONE	FAX	E-MAIL
Nancy Larsen	715 842-8886 Ext. 4967	715 847-6879	nancy.larsen@brp.com

WARRANTY

TIPS

NOTE: **Please, do not forget:**

– You have 21 days from the repair date to submit a claim.
– You have 45 days from the credit date to ask for a claim resubmission.
– North American dealers have 21 days to return your parts (please keep tracking number) and documents to BRP from the date your claim is accepted.

NOTE: For North America, If you feel you will not be able to complete the repair before the end of Warranty, but the vehicle before the end of warranty, please complete the Repairs Completed While Vehicle's Warranty Expired form available in the ComCenter section of BOSSWeb under Warranty Guide and Forms. Fax this form before the end of the Warranty to the number at the bottom of the Form.

NOTE: For other countries dealers, please contact your local distributor or BRP Regional Office.

– You must keep the parts that are not requested to be returned to BRP 90 days after the credit date.
– You must register all vehicles within 10 calendar days from the date of delivery to the customer.

NOTE: **You must keep on file all the following information about a vehicle.**

– Signed PDI checklist (keep for 10 years).
– Signed rider form (ATV only).
– Warranty registration form.
– Work/repair order (keep for 3 years from the credit date).
– Warranty claims (keep for 3 years from the credit date).
– Sublet work/repair receipts (keep for 3 years from the credit date).
– Notes on customer call.

NOTE: **Your work orders must be able to provide key elements which describe and justify the warranty claim:**

The 3 C's

– Condition or Complaint: Description of customer complaint(s).
– Cause: The determination of which component(s) failed.
– Cure: The corrective action taken to fix the problem (repair and/or replace).

And

– Vehicle serial number.
– Reported date of failure/date of repairs completed.
– Mileage or hours on the vehicle.
– If applicable, authorization number issued by a service representative.
– Punched timecards of mechanics.
– Customer's signed authorization to perform the work (signature).

PARTS RETURN

CANADIAN DEALERS	USA DEALERS	INTERNATIONAL DEALERS
Use label (P/N 484 500 001)	Use label (P/N 480 901 601)	All requested Warranty Parts must be returned to your distributor or BRP Regional office. Contact them for complete address and shipping information.
BRP C/O Warranty Parts Center 565 De La Montagne Valcourt Qc J0E 2L0	BRP C/O Warranty Department 7575 Bombardier Court Wausau WI 54401	

Ensure the part returned is properly tagged and the correct copy of the BOSSWeb claim is included in the packaging, otherwise this may cause a delay in processing your claim.

Dealers dealing with North West Co. Inc. must forward the parts, warranty claim and documents to their respective distributor's office.

NOTE: For complete details concerning returning warranty parts, please refer to the Warranty Service Guide on BOSSWeb.

B.E.S.T. (BRP EXTENDED SERVICE TERMS)

vdd2009-001-103

NOTE: OFFERED TO THE NORTH AMERICAN DEALER.

B.E.S.T. is an extended service plan designed to create a new income opportunity for BRP's authorized dealers. A true peace of mind for your customers, B.E.S.T. can be included in every new vehicle sale or sold at retail to existing customers. It offers a valuable additional extended service plan and also has a customer retention focus with its annual maintenance plan which, brings customers back to your dealership for services.

There are two plans to choose from:

– **B.E.S.T. Plus**: extended service coverage + 10-hour check (off road vehicles)/600 mile inspection (Spyder roadster) and annual maintenance.
– Regular **B.E.S.T.**: extended service coverage only.

The plan features:

– Coverage of eligible Ski-Doo snowmobiles, Sea-Doo PWCs, Can-Am ATVs and roadsters, and Rotax Powered Sea-Doo Sport Boats.

– Coverage available for a full 3-year extended period beyond the manufacturer's warranty. Customers can purchase in 12, 24, 36 month's blocks.
– Unlimited mileage/hours protection.
– Coverage is fully transferable but non-cancelable, at no charge.
– Repairs are subject to a deductible of only $50 for each repair order (except for Emergency Roadside Assistance offered on Spyder roadsters where there is no deductible).
– Personalized welcome letter and card sent to customers.

For detailed information on BRP's B.E.S.T. coverage, please refer to the B.E.S.T. contract form. For any other inquiry or to order marketing documents, you may go to *BOSSWeb (COMCENTER/DOCUMENT/B.E.S.T.GUIDE)* or call our Sales Administration team at 1-800-361-6992 (USA) or at 1-800-361-9980 (Canada).

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	USA	CANADA
Contract forms	(P/N 484 800 210) Florida: (P/N 484 800 536)	(P/N 484 800 212)
Counter mats	(P/N 219 701 170)	(P/N 219 700 535)
Customer brochures	(P/N 219 700 533) Florida: (P/N 219 700 603)	(P/N 219 700 709)

"WHAT'S NEWS" LETTER

HOT TIPS AND TRICKS FROM YOUR AFTER SALES GROUP, POSTED WEEKLY

Once a week, the "What's News" letter is published on BOSSWeb. It provides the latest news from the After Sales Department.

3 ways to access the "What's News" letters.

Go to *BOSSWeb* (**www.bossweb.brp.com**).

On the home page, select the **"What's News" banner [1]** which provides rapid access to the newly published letters for 3 days.

After 3 days, the recently published letters can be accessed through the BOSSWeb home page for an additional 4 days. To access them, choose **What's News** in the *DOCUMENT TYPE* drop down menu **[2]** on the right side of the page.

All What's News publications are archived from the first day of publication and available though the *COMCENTER* **[3]** section of BOSSWeb.

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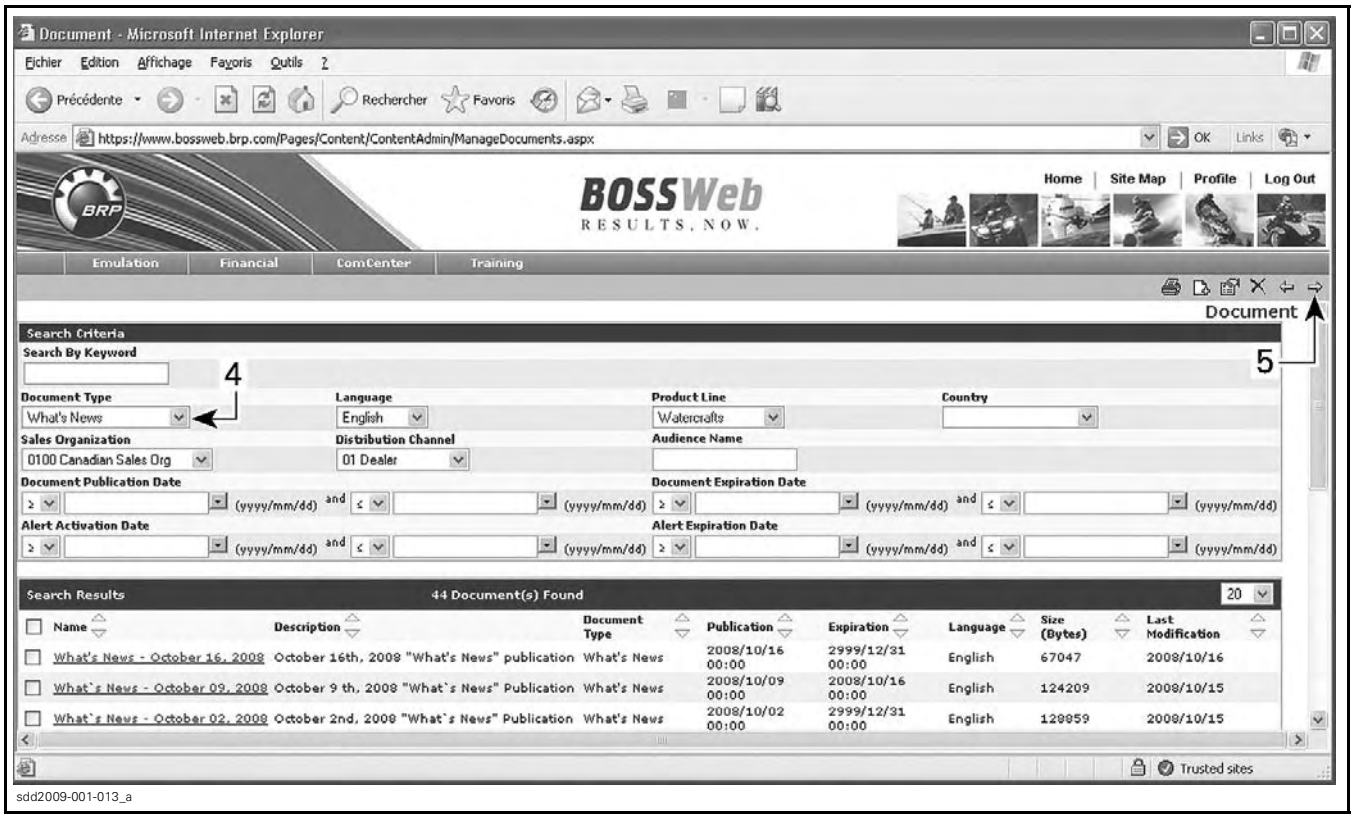
They can be accessed by first selecting **Document** in the *COMCENTER* drop down menu **[3]**.

In the *SEARCH CRITERIA FIELD*, choose "What's News" in the **Document Type** drop down box **[4]**, select the appropriate information in the other applicable drop down boxes, and click on the **Submit** arrow **[5]**.

The archived publications shall be listed in the **Search Results** field at the bottom of the page. Double click on the publication name to view it.



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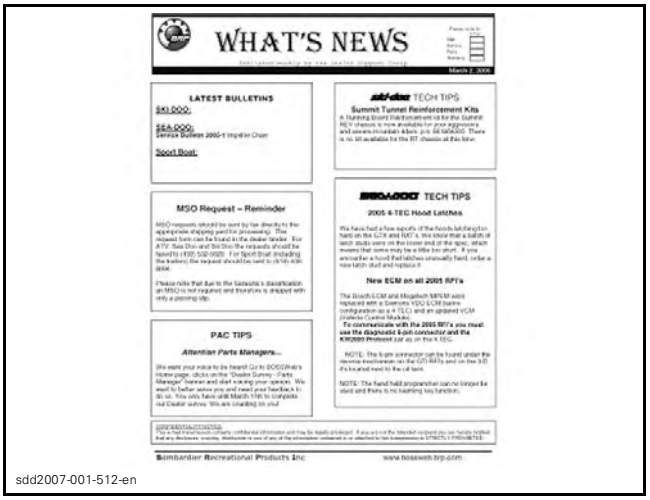
NOTE: BOSSWeb is the only place you will find this letter.

This is an example of a What's News letter.



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REPORTS ON PERFORMANCE AND QUALITY

RPQ

RPQ is the method BRP uses to know what is happening in the network.

By calling or faxing the **R**eports on **P**erformance and **Q**uality you are helping speeding-up the investigation process.

Quantity Counts

The quantity of RPQs we receive on issues helps determining priorities; an issue that is happening on many units will most likely be put in priority. Specially on the current model year do not hesitate to report the same issue on different vehicles.

This is an example of the data base fields the Service Representative will fill up:

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You will be asked:

– Dealer number
– Vehicle model year
– Serial number
– Mileage hours
– Possible digital pictures.

You will also be asked if there is already a call identification number logged and a detailed description of the issue.

A form is also available in the *ANNEXES SECTION*; it can be filled out and faxed to a Service Representative.

It is important that you tell us about your concerns: Report on Performance and Quality.

IMPORTANCE OF PDI

WAS THE PDI CHECK LIST PROPERLY FILLED AND FILED?

Sell Value for the Money

Give the customer assurance that a proper pre-delivery inspection has been performed on the vehicle. As well as the ability to show all the steps required to justify the expense of "set-up charges".

Professionalism

In today's market place, customers have come to expect nothing but the best from a well trained service department. With the PDI sheet completed and signatures from each person involved you can show your commitment to excellence. When a customer leaves your dealership he should be aware of and have:

– All operators and safety guides.
– His sales information.
– The PDI sheet.
– Proof of registration.

NOTE: The checklist has been modified to include an "OWNER'S SECTION" on the second page that is to be read and signed by the customer.

Was the PDI checklist reviewed with the customer? Was the "OWNER'S SECTION" of the PDI Check list read and signed by the customer?

Legal Protection

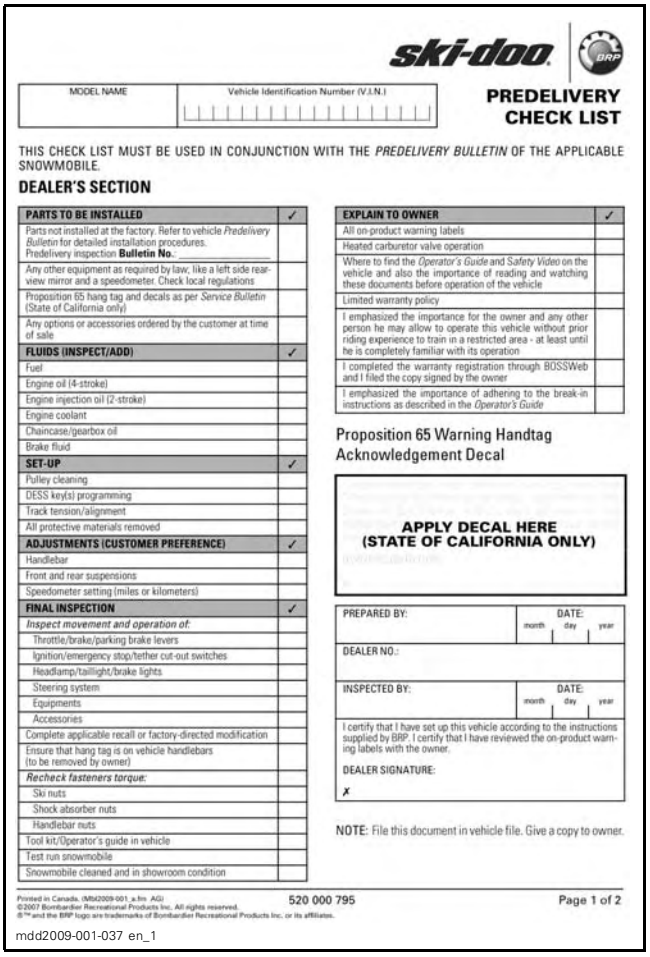
Documented proof that you have reviewed with the customer the operation and maintenance procedures for the vehicle.

Where Do I Find these Documents?

They are shipped with every BRP recreational vehicle or can be found in **BOSSWeb** (**www.bossweb.brp.com**), **ComCenter** tab, **Document Type** (Technical Publications), **Category** (Checklist).

How Do I Learn More About It!

An easy way to learn more about the delivery process is to view the DVD: Introduction to Dealer Development Training DVD Volume 1; (P/N 219 700 256) from the BRPTI (Bombardier Recreational Products Training Institute) DVD series.



ski-doo

MODEL NAME | Vehicle Identification Number (V.I.N.)

PREDELIVERY CHECK LIST

THIS CHECK LIST MUST BE USED IN CONJUNCTION WITH THE *PREDELIVERY BULLETIN* OF THE APPLICABLE SNOWMOBILE.

DEALER'S SECTION

PARTS TO BE INSTALLED	✓
Parts not installed at the factory. Refer to vehicle *Predelivery Bulletin* for detailed installation procedures. Predelivery inspection **Bulletin No.**:	
Any other equipment as required by law, like a left side rear-view mirror and a speedometer. Check local regulations	
Proposition 65 hang tag and decals as per *Service Bulletin* (State of California only)	
Any options or accessories ordered by the customer at time of sale	
FLUIDS (INSPECT/ADD)	✓
Fuel	
Engine oil (4-stroke)	
Engine injection oil (2-stroke)	
Engine coolant	
Chaincase/gearbox oil	
Brake fluid	
SET-UP	✓
Pulley cleaning	
DESS key(s) programming	
Track tension/alignment	
All protective materials removed	
ADJUSTMENTS (CUSTOMER PREFERENCE)	✓
Handlebar	
Front and rear suspensions	
Speedometer setting (miles or kilometers)	
FINAL INSPECTION	✓
Inspect movement and operation of:	
Throttle/brake/parking brake levers	
Ignition/emergency stop/tether cut-out switches	
Headlamp/taillight/brake lights	
Steering system	
Equipments	
Accessories	
Complete applicable recall or factory-directed modification	
Ensure that hang tag is on vehicle handlebars (to be removed by owner)	
Recheck fasteners torque:	
Ski nuts	
Shock absorber nuts	
Handlebar nuts	
Tool kit/Operator's guide in vehicle	
Test run snowmobile	
Snowmobile cleaned and in showroom condition	

EXPLAIN TO OWNER	✓
All on-product warning labels	
Heated carburetor valve operation	
Where to find the *Operator's Guide* and *Safety Video* on the vehicle and also the importance of reading and watching these documents before operation of the vehicle	
Limited warranty policy	
I emphasized the importance for the owner and any other person he may allow to operate this vehicle without prior riding experience to train in a restricted area - at least until he is completely familiar with its operation	
I completed the warranty registration through BOSSWeb and I filed the copy signed by the owner	
I emphasized the importance of adhering to the break-in instructions as described in the *Operator's Guide*	

Proposition 65 Warning Handtag Acknowledgement Decal

APPLY DECAL HERE (STATE OF CALIFORNIA ONLY)

PREPARED BY: DATE: month day year

DEALER NO.:

INSPECTED BY: DATE: month day year

I certify that I have set up this vehicle according to the instructions supplied by BRP. I certify that I have reviewed the on-product warning labels with the owner.

DEALER SIGNATURE:

✗

NOTE: File this document in vehicle file. Give a copy to owner.

520 000 795

Page 1 of 2

mdd2009-001-037 en_1

BRP ELECTRONIC PARTS CATALOG

PARTSMART VERSION 8.9.28

By the end of June you will recive the new electronic *PARTS CATALOG PART SMART* version 8.9.28!

If you need detailed instructions (including pictures of example screens) or for network install instructions, access a file called instructions pdf on the *PART SMART CD*.

License Keys

A license key is required for new installations of PartSmart 8.9.28, or if a new license key has been issued for some other reason.

Installation

Server-only Installations. When 8.9.28 is installed from the Server, the software on the client work stations will be updated to the newest version without any additional action required. All Client work stations must exit PartSmart before running the update from the server.

NOTE: If you are using the PartSmart Updater feature, when installation of PartSmart 8.9.28 is complete, you will need to reset the schedule you have in place. To update, click on Start ALL Programs ARI PartSmartUpdate, choose the tab to review and or set up your preferred schedule.

Overall Install

You will be prompted to enter your license key after you launch PartSmart, and to select a catalog which, requires an updated key.

Catalog Install

The catalog data installation has been designed to ensure that catalog updates do not "hang" during the installation and successfully complete regardless of size.

The license key can be found on BOSSWeb.

For assistance in obtaining a license key, please communicate with our technology support group at 1 800 361-9980 (4).

BRP Electronic Parts Catalogs (PartSmart and Empart) are included in the monthly fee, so there is **NO extra billing**.

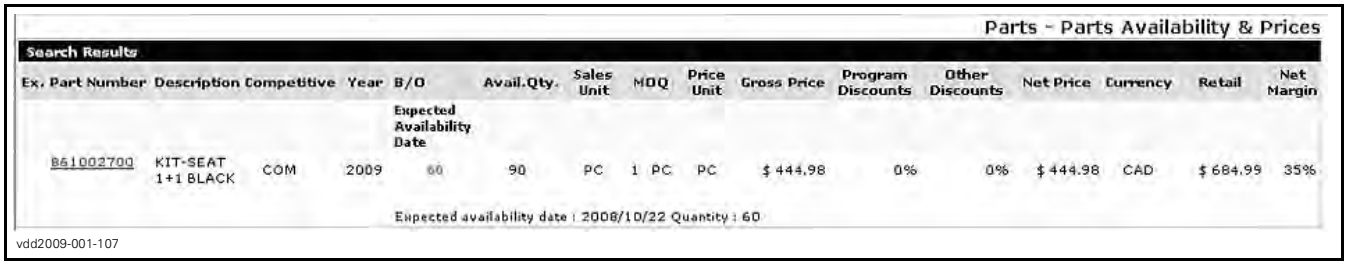
FOR ASSISTANCE CONTACT TECHNOLOGY SUPPORT	CANADA	USA
PHONE	800 361-9980 (4)	800 361-9980 (4)

BOSSWEB TIPS AND TRICKS: E.T.A.

PARTS AVAILABILITY SCREEN

You can now see on various BOSSWeb screens, Estimated Time of Arrival (E.T.A.'s) for some our your critical back ordered items:

TIP: When looking up ETAs on the Parts Availability and Prices screen, it is important to select the appropriate product line of the part number. If the product line chosen does not match the product line of the part, an error message such as "Material not saleable call a PAC analyst" will be generated. Adjusting the product line will help in a situation like this.



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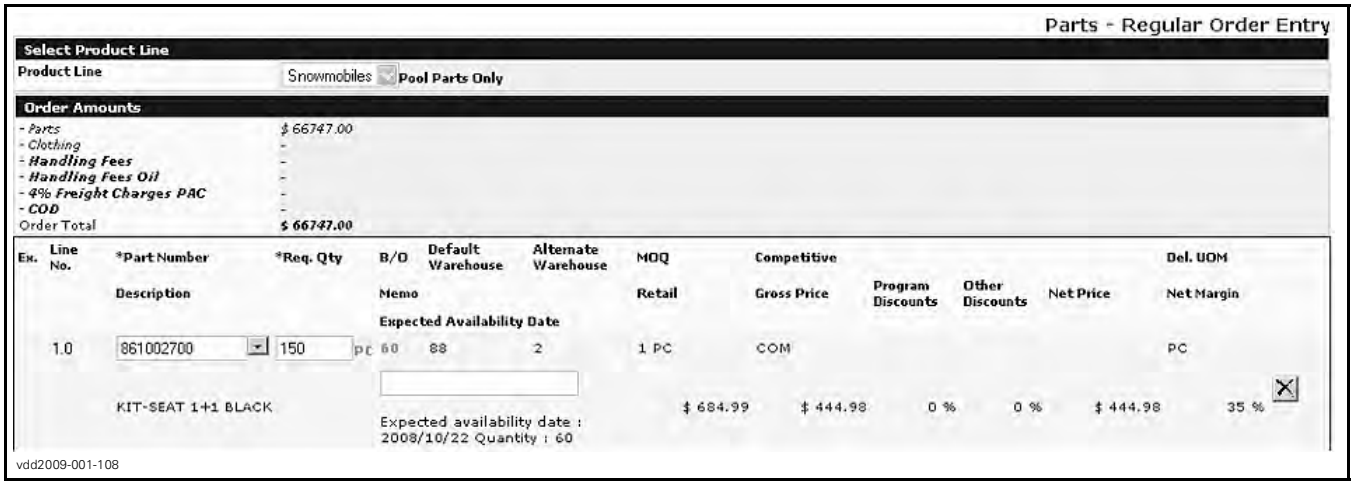

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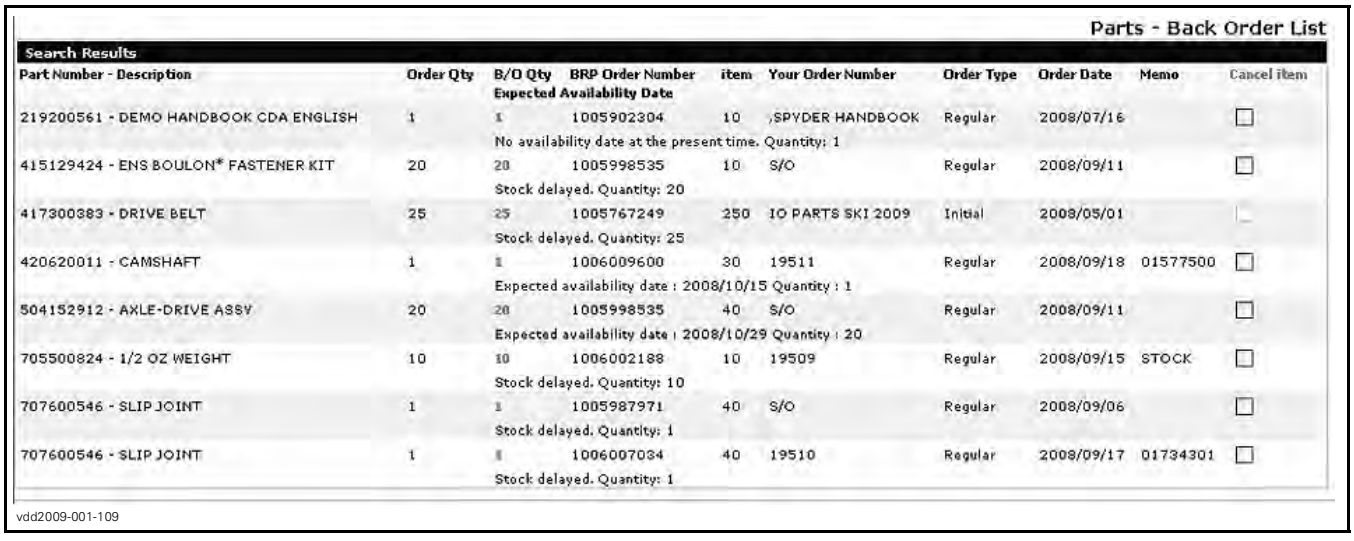


vdd2009-001-109

BOMBARDIER RECREATIONAL PRODUCTS TRAINING INSTITUTE

THE FOUR STEPS TO TECHNICIAN TRAINING

1. Getting Started

How to become a better BRP service technician

GO to BRPTI via BOSSWeb, review your dealership copy of the *BOMBARDIER RECREATIONAL PRODUCTS GUIDE TO SERVICE FUNDAMENTALS BOOKS* (English (P/N 484 800 168) or French (P/N 484 800 167) which was automatically shipped to every dealership. Then complete the Entrance (Qualifier) Exam on the web site. A passing score of 75% allows you to proceed to the Technician level.

2. Technician Level Training

Watch the DVD series (all product lines are DVDs 1-2-3-4-5, DVD 6 Sea-Doo Supercharger, DVD 7 Roadster Technical Overview). Complete all the exams in the Technician Level of your choice on BRPTI. Passing scores of 75% qualifies you for the BRP Technician Level.

vdd2009-001-105

3. Certified Technician Level

After the Technician Level and current Technical Update exams are completed with a passing score, you can register to attend the Certified Level, hands-on training at one of three locations:

– Sherbrooke, QC
– Wausau, WI
– Atlanta, GA


vdd2008-001-053

These courses are 100% hands-on and very challenging. Students receive credits toward their Certified Technician Level for each task completed. Enroll on BRPTI to Course no. 0060 to see the latest information.


vdd2008-001-054

4. Master Technician Level

After being at the Certified Technician Level for one year, if you have 5 years Powersports Industry experience as a technician, have worked at your current dealership for 2 years, and pass all subsequent applicable Technical Update exams with 90% or higher on the first completion, you may qualify as a Master Technician. Enroll on BRPTI to Course no. 0070 to see the latest information.

BOOK AND DVD QUICK PN REFERENCE

TECHNICAL UPDATE BOOKS

Technical Update Books	English	French
2010 Ski-Doo Technical Update Book	219 600 042	219 600 043
2009 Ski-Doo Technical Update Book	219 600 029	219 600 030
2008 Ski-Doo Technical Update Book	219 600 019	219 600 020
2007 Ski-Doo Technical Update Book	219 600 015	219 600 016
2006 Ski-Doo Technical Update Book	219 600 013	219 600 014
2005 Ski-Doo Technical Update Book	219 600 012	219 600 011

RACING HANDBOOK

	English only
2010 Ski-Doo Racing Handbook	484 800 719
2009 Ski-Doo Racing Handbook	484 200 085
2008 Ski-Doo Racing Handbook	484 200 084
2007 Ski-Doo Racing Handbook	484 200 076
2006 Ski-Doo Racing Handbook	484 200 073

TECHNICAL BOOK

BRP Guide to Service Fundamentals and Principles	484 800 168	484 800 167

COMPETITIVE EDGE DVDS

2009 Ski-Doo Competitive Edge DVD	484 800 559
2008 Ski-Doo Competitive Edge DVD	484 800 458
2007 Ski-Doo Competitive Edge DVD	484 800 345
2006 Ski-Doo Competitive Edge DVD	484 800 237
2005 Ski-Doo Competitive Edge DVD	484 800 152
2004 Ski-Doo Competitive Edge DVD	219 700 259

TECHNICAL DVDS

DVD Series Training Kit (includes a DVD player, Tech DVDs Vol 1 to 5 Intro to BRPTI DVD)	295 500 954
Intro to BRPTI DVD	219 700 196
DVD1 Engines	219 700 197
DVD2 Electrical Systems	219 700 198
DVD3 Fuel Systems	219 700 199
DVD4 Suspensions Chassis Steering	219 700 200
DVD5 Transmissions Drive Lines	219 700 201
DVD6 Supercharger (Sea-Doo)	219 700 273

DEALER DEVELOPMENT TRAINING DVDS

Introduction to Dealer Development Training - DVD1	219 700 256
Dealer Development Training - CSI - DVD2	219 700 325
Dealer Development Training - Service Department Operation - DVD3	219 700 329
Dealer Development Training - Parts Accessories Management - DVD4	219 700 403
Dealer Development Training – Selling Skills – DVD5	219 700 518
Dealer Development Training - Merchandizing – DVD6	219 700 519
Dealer SupportHow to do Business wBRP – DVD 7	219 700 655

ACCIDENT PROCEDURE

Since BRP wants to monitor all aspects of accidents involving any BRP product, please call our toll free hotline to report the accident and communicate to us any relevant information.

NOTE: In general, if you are aware that a BRP product is involved in an accident, which has the potential to be related to product quality, or you or BRP are being accused as being responsible, listen and report all the facts (names, addresses, serial numbers, circumstances, etc.).

THE BRP ACCIDENT REPORT FORM IS AVAILABLE FROM BOSSWEB (COMCENTER WARRANTY GUIDE FORMS) OR IN THE ANNEXES SECTION OF THIS BOOK.

- The accident report should be completed and signed by the owner operator; then sent to the BRP Wausau office. (fax: 715 847-6879; Mail: 7575 Bombardier Court, Wausau, WI 54401). Ensure the date of the narrative is filled in.
- Call a Service Representative to open a file you will be advised what to do next.
- Report facts only. Do not investigate or commit yourself, BRP, or others.
- The owner should bring the vehicle to you in order to facilitate the investigation. Isolate and cover the vehicle. Do not make any repairs pending further investigation.
- Take photographs of the damaged product, as verification of the damages, and to avoid any potential claim that the product was destroyed, modified or the evidence was lost.
- In case of PERSONAL INJURIES - DO NOT REPAIR THE PRODUCT. Contact one of the below contact persons.
- Make no admissions, or assumptions on the cause. Keep BRP informed of any further developments.

IN THE EVENT OF FATALITY OR SERIOUS ACCIDENT:

If a fatality or serious injury occurs in your area involving any BRP product, we ask dealers to adhere to the following procedure. Immediately contact one of the following:

	Phone	Fax
Nancy Larsen (English) Coordinator Legal Support	800 366-6992 ext. 4967	715 847-6879
Rich Klein (English) Technical Support Coordinator	800 366-6992 ext. 6836	715 847-6879
Chantal Gagnon (French) After Sales Service Manager	450 532-2211	450 532-6313

What's New

The objective of this section is to give the opportunity to dealers and technicians to learn and understand the differences between this year and last year models on a technical standpoint. **If there are no technical differences, nothing will be shown.**

All MODELS

ALL REV X MODELS

mdd2010-001-288

What's New:

For 2010, some of the Ski-Doo shock absorbers have had the names changed. The following chart shows the old shock names vs the new names of the shock absorbers used on 2010 Ski-Doo snowmobiles.

Why:

Better brand recognition that Ski-Doo uses KYB shock absorbers.

OLD NAMES	NEW NAMES	DESCRIPTION
HPG	HPG	KYB steel body with high pressure gas
HPG-VR	HPG-VR	KYB steel body with high pressure gas – variable rate
HPG T-A aluminum	HPG Plus	KYB aluminum body rebuildable shock
HPG Clicker T-A	HPG Plus R	KYB aluminum body rebuildable shock with rebound clicker adjustment
C-36 Racing Clicker	KYB Pro 36	KYB aluminum body 36mm rebuildable shock with low speed and high speed compression adjustment
C-40 Rear	KYB Pro 40	KYB aluminum body 40mm rebuildable shock with low speed and high speed compression adjustment
C-40 Front	KYB Pro 40 R	KYB aluminum body 40mm rebuildable shock with low speed and high speed compression adjustment and rebound damping adjustment

ALL REV X 1200 AND E-TEC MODELS

What's New:

Fuel pump filter

Why:

200% larger surface area for improved resistance to flow restriction do to contaminated fuel or debris. This filter element can be used to replace MY 2009 filter if needed.

mdd2010-001-129

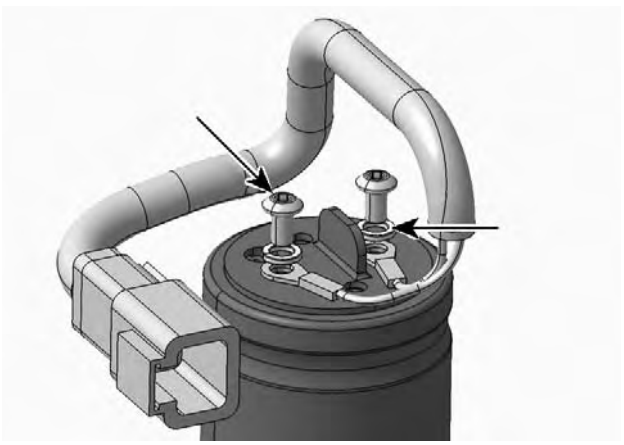
ALL REV XP WITH E– TEC ENGINES

What's New:

Improved capacitor wire connections.

Why:

To improve security and electrical conductivity between capacitor and wiring harness. A new allen screw with "Scotch grip" has been introduced, this along with a lock washer will ensure the connections stay tight.



mdd2010-001-130_a

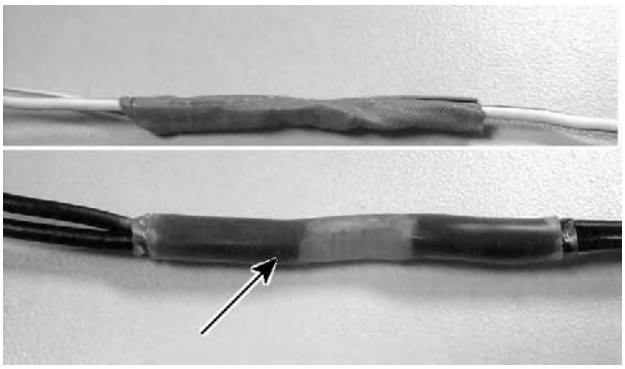
ALL REV X MODELS

What's New:

Wiring harness splices.

Why:

All harness splices are both ultrasonically welded and then a heat shrink with glue applied to improve electrical conductivity by mechanically fastening joint securely.



mdd2010-001-131_a

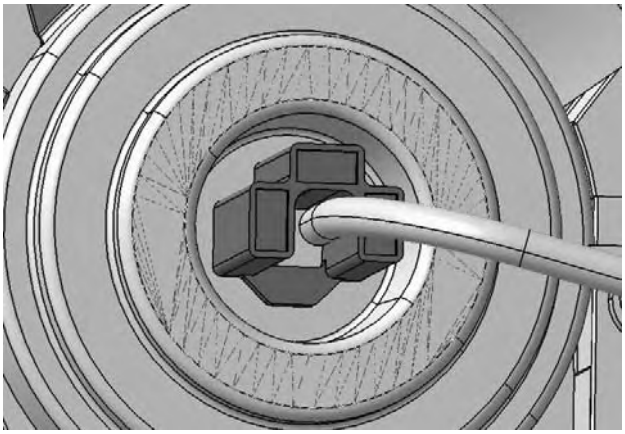
ALL REV X MODELS

What's New:

Headlight female connectors.

Why:

Improved design to allow easier removal of connector from bulb. Previous design may be difficult to remove when new. Headlamp bulb remains the same.



mdd2010-001-137

REV XP AND XU,RENEGADE SPORT, TUNDRA AND TUNDRA SPORT

What's New:

137" Cobra track, 1.325" profile.

Why:

Available in both 15" and 16" widths, softer more flexible profile provides excellent acceleration and top speed in softer snow conditions.

mdd2010-001-100

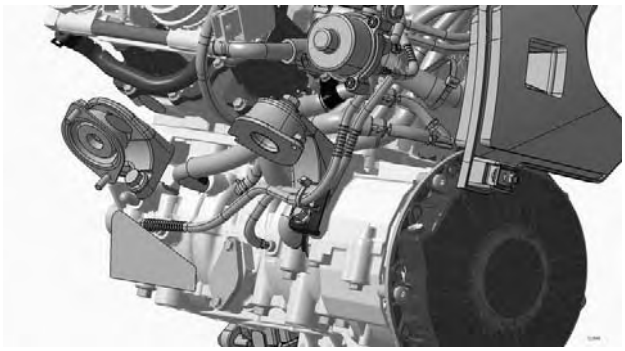
ALL XP/XR/ E- TEC VEHICLES

What's New:

Oil line protector and tie rap added.

Why:

To avoid possibility of oil line being "pinched " between engine mount and chassis on the assembly line.



mdd2010-001-101

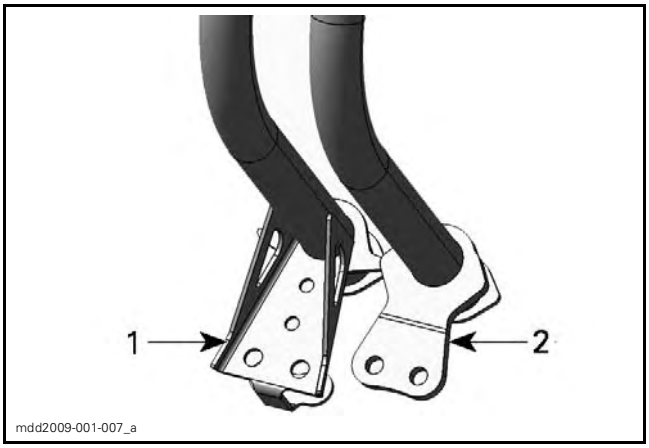
ALL REV-XP AND XR VEHICLES

What's New:

ESR - Easy Steering Ratio. Steering column:

[1] 2009 execution

[2] 2010 execution.



Why:

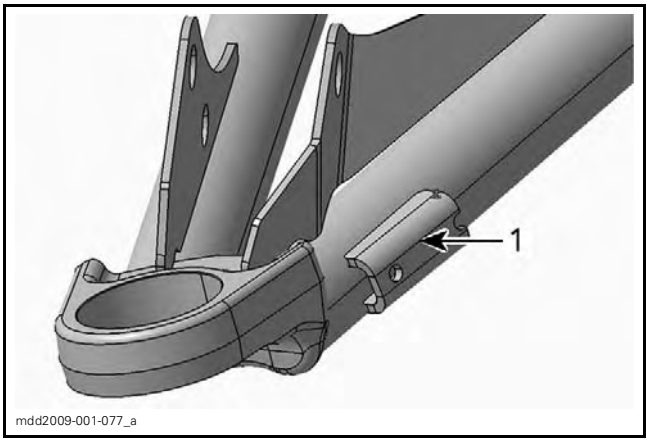
Introduced last year on the XR chassis to reduce steering effort by 25%. The steering pivot arm is 9.5 mm shorter and angled. This increases the steering leverage allowing easier turning and keeps bump steer to a minimum. The rider also feels less "feedback", resulting in incredibly precise steering. The steering radius is reduced by approx 5-6 degrees.

ALL REV-XP AND XR VEHICLES

What's New:

Lower suspension A arms.

[1] Steering stop welded to lower suspension arm.



Why:

To prevent damage to steering system while pulling on 1 ski by customer. A stop has been welded to lower A arm's, this makes contact with the ski spindle when turned full lock.

ALL REV X PLATFORMS

What's New:

Fuel gauge cluster logic

Why:

Cluster will detect if fuse or fuel level sender is broken. The fuel tank bar graph in LCD will flash 0,5Hz ON and OFF.

This will help costumer and/or dealer to diagnose a broken fuse or bad fuel sender.

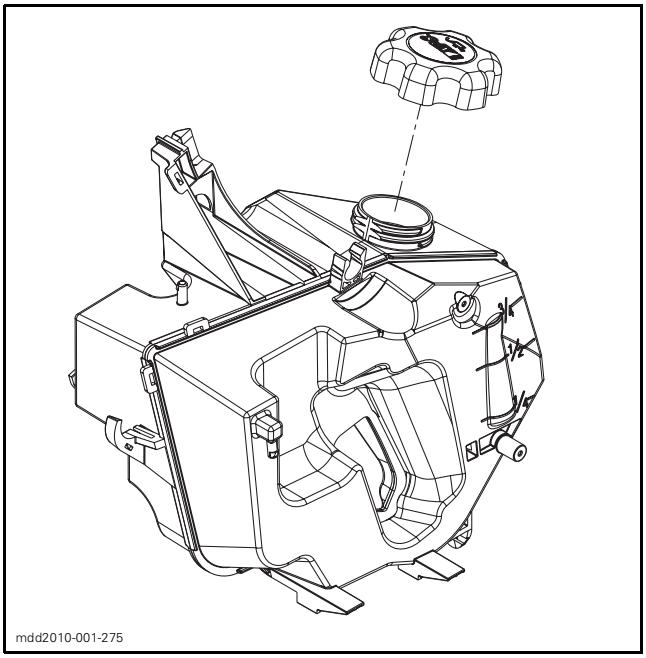
ALL REV X'S CARB'D AND E-TEC'S MODELS.

What's New:

Oil tank

Why:

Secure, simplified, and improved oil filter or oil pump mounting system. Designed to be self aligning and then just press into place.


mdd2010-001-275

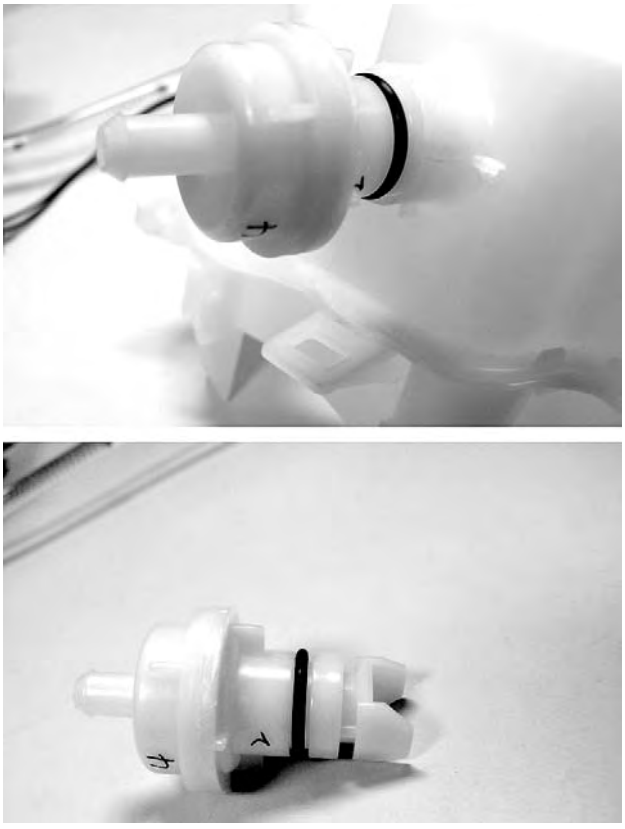
ALL REV X CARB'D MODELS

What's New:

Oil filter

Why:

Mounts directly to new design oil tank, sealed with an "O" ring, easily installed to oil tank. Eliminates 2 oil line joints, ensures secure leak proof connection.


mdd2010-001-110

ALL REV X E-TEC MODELS

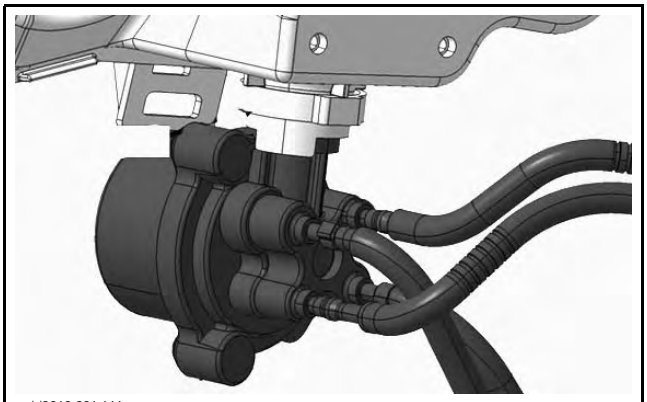
What's New:

E Tec oil pump.

Why:

Simplified attachment to oil tank, "O" ringed for leak free installation. Oetiker clamp added for secure attachment.

NOTE: Ensure to order correct year tank or pump if replacing, Three different tanks and pumps available at this time. MY 2010 tank and pump together will retrofit previous XP E-Tec models.



mdd2010-001-111

RUNNING CHANGE ON MANY REV XP, XR AND XU MODELS

What's New:

QRS support

Why:

Now forged for greater strength and machined to ensure precise fit to tunnel.

mdd2010-001-112

ALL REV X MODELS

What's New:

Clinch stud

Why:

Larger head for increased support, improved torque re-tension.

NOTE: If previous years QRS support ever replaced ensure to use larger clinch studs.

mdd2010-001-113

ALL REV XP/XR/ XU MODELS

What's New:

Fuel sending unit fuse and fuse holder security.

Why:

Fuse was 250 MA and is now 500 MA. Increased fuse amperage resists vibration related failure, and fuse holder is now secured with a clip to improve conductivity. Fuse is available separately (P/N 710 001 995).

mdd2010-001-114

MOST REV X L/C MODELS

What's New:

Engine coolant hoses.

Why:

A new process to ensure uniformity of outside diameter of hoses. These hoses are more accurately sized on the inner and outer diameter. This ensures that Oeitker clamps used on the assembly line will apply the proper "squeeze" on the hose to ensure a leak free seal.

mdd2010-001-115

MOST REV X L/C MODELS

What's New:

Oetiker clamps

Why:

Smaller clamps used to ensure correct pre-load on the new pre-sized hoses. Clamping torque is more consistent on the assembly line.

mdd2010-001-116

MOST REV X L/C MODELS

What's New:

Thermostat and coolant bottle

Why:

Coolant fittings are now precisely monitored for correct specifications to reduce coolant leaks.

mdd2010-001-117

MOST XP MODELS

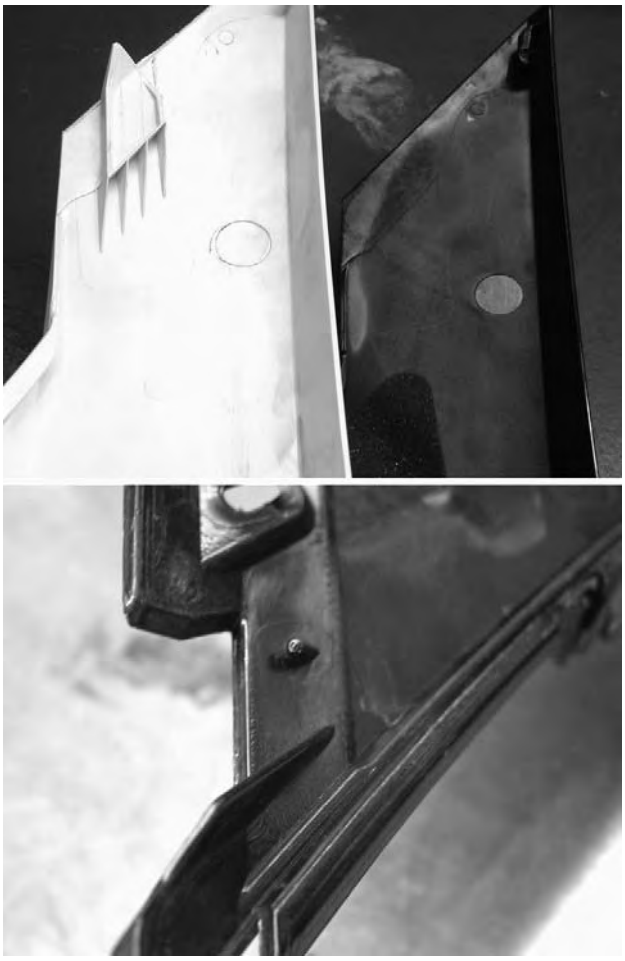
What's New:

Hood

Why:

Mold modified for two additional tabs to be added, this ensures a better fit of the hood. It also reduces the possibility of the hood from "popping" out on the sides in extreme riding conditions.

NOTE: This will not retrofit previous XP models without removing two small tabs from the console slot by grinding them flush.



mdd2010-001-118

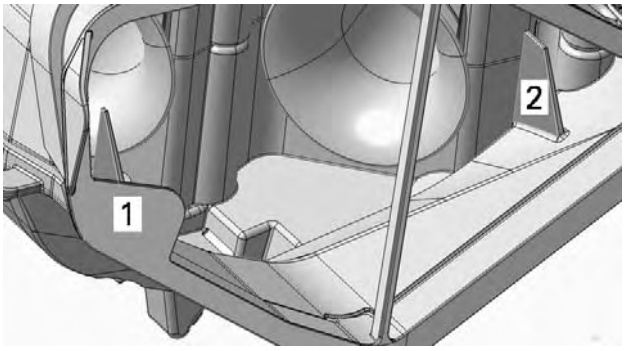
MOST XP MODELS

What's New:

Air box

Why:

[1] and **[2]** tabs have been molded on the inside of the air-box to reduce the chance of the pre-filter being pushed inside the air-box. This improves the fit and support of the pre- filter and foam element.



mdd2010-001-286_a

ALL REV X MODELS

What's New:

Fuel tank

Why:

The fuel sending unit grommet hole is larger in diameter for the new grommet below.

mdd2010-001-120

ALL REV X MODELS

What's New:

Fuel sending unit grommet

Why:

New design with larger outside diameter and improved tie rap positioning.

NOTE: This grommet will not retro fit into older XP fuel tanks. Only if both tank and grommet are replaced as a set.

mdd2010-001-121

MOST ALL REV X MODELS EXCEPT SUMMIT

What's New:

Rev X front suspension changes:

Refined front suspension calibration.

- Front springs rate changed from 80 to 90 lbs
- More low speed compression dampening
- Less high speed compression dampening
- Slightly less rebound dampening.

mdd2010-001-287

Why:

- Spring rate change reduces body roll in corners
- Increasing the low speed compression dampening also helps reduce chassis roll in corners, keeps vehicle flatter under high speed sweepers
- Reducing high speed compression dampening allows better bump absorption to compliment the stiffer spring rate.
- The decrease in rebound dampening allows the front shocks to rebound faster so the suspension does not "pack up". Better comfort in "ripple" bumps.

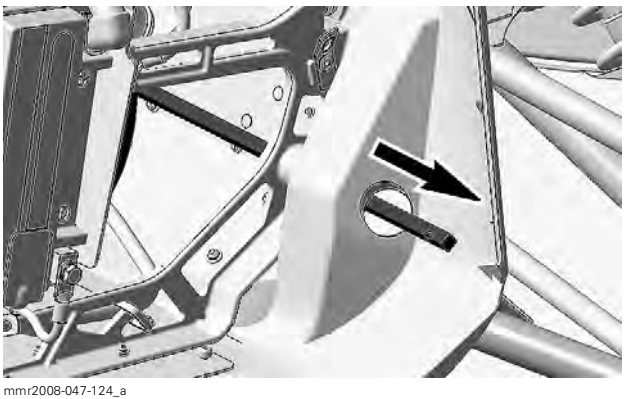
ALL SUMMIT MODELS

What's New:

Softer sway bar.

Why:

Now 7.14 mm vs. 8.3 mm last year, this change makes side hilling easier and allows the front suspension to be more independent in un-groomed bumpy trails. Reduces side to side pitching also.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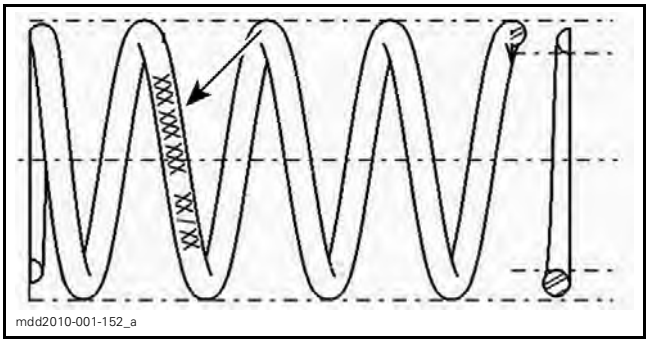
RUNNING CHANGE IN ALL REV X MODELS



RUNNING CHANGE IN ALL REV X MODELS

What's New:

TRA springs

Why:

An improved way to identify both TRA ad QRS springs has been initiated. The part number and the color code are now ink printed on the lower coils of the wire.

What's New:

Spring color code chart

Why:

To be used with the new process of marking springs and to reference to cross reference to old color codes.

GREEN	GN
WHITE	WH
PURPLE	PL
YELLOW	YL
BLUE	BL
ORANGE	OR
RED	RD
PINK	PK
BLACK	BK
GREY	GY
BROWN	BR
BEIGE	BG
GOLDEN	GD
SILVER	SI

RUNNING CHANGE IN ALL REV X MODELS

What's New:

2nd and 3rd generation QRS adjuster.

Why:

Introduced as a running change in MY09 vehicles the aluminum adjuster separates the belt change function from the deflection adjustment. As we continue to improve the product a new style adjuster will be introduced on most vehicles this season. The new adjuster is made of plastic and threads onto a longer countershaft that is threaded on it's outer diameter. To change a belt the same "T" type 6 mm threaded tool is used to thread into an insert in the adjuster. Thread the tool in to spread the sheaves for belt changes. To adjust belt deflection loosen the Phillips screw clamping the adjuster tight to the countershaft, then using the suspension wrench in the tool kit, turn the adjuster inward or outward on the countershaft until the desired deflection is obtained. As in the past the belt needs to be rotated in the pulleys while adjusting. Once set, ensure to re-tighten the phillips screw to lock the adjuster.

mdd2010-001-154

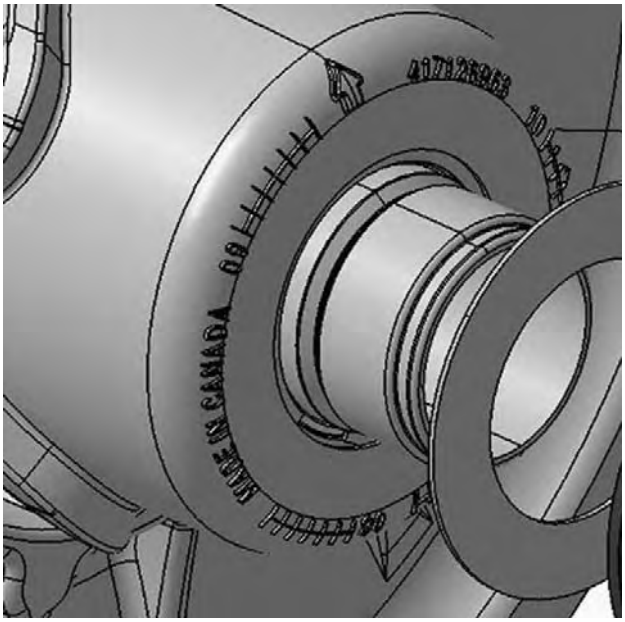
MOST REV X MODELS

What's New:

QRS countershaft

Why:

Shaft is now aprox. 25 mm / 1" longer and threaded externally to accept new style adjuster.



mdd2010-001-155

ALL REV X MODELS

What's New:

Fuel tank seat tab hooks

Why:

Redesigned tabs make seat installation easier. Larger angle on front of tab and increased height at rear improve fit.


mdd2010-001-122

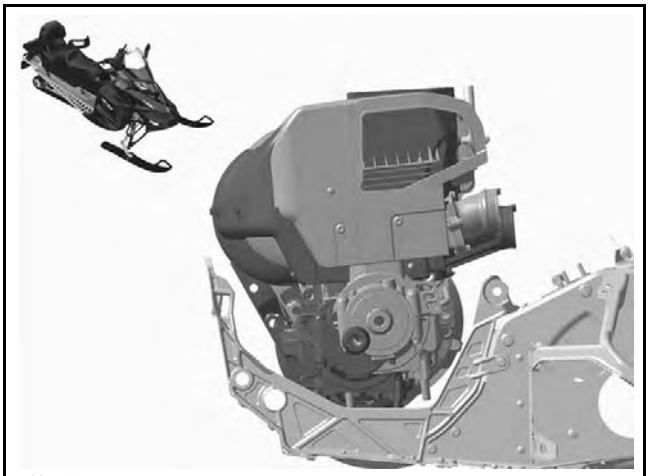
MX-Z, RENEGADE, GSX, GTX AND TUNDRA

What's New:

550 Fan in the Rev-X platform.

Why:

This is to upgrade the 550 Fan into the Rev-X chassis. By adapting the Rev-X platform to accommodate the economical 550 fan engine, BRP brings the benefits of the Rev-X to entry-level models, including extreme light weight, eight inches (20 cm) of additional legroom and advanced features.


mdd2010-001-145

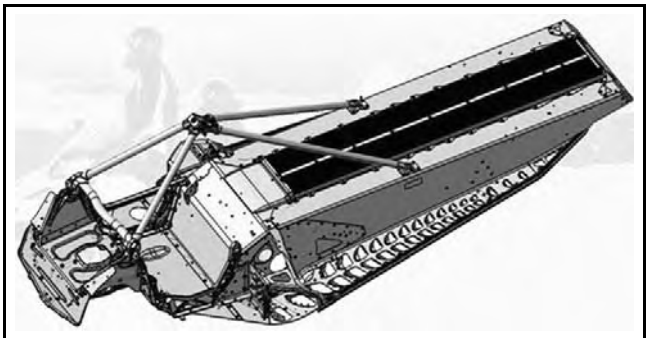
XP FAN

What's New:

XP fan chassis

Why:

To complete the conversion of all models to XP platform. Commonality of parts and the latest ergonomics.


mdd2010-001-204

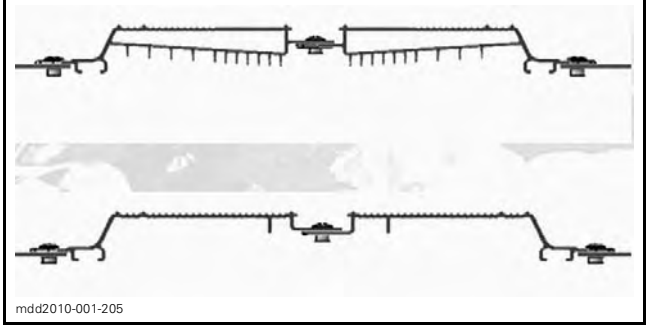
ALL REV AND TUNDRA FANS

What's New:

Central spine

Why:

Instead of a conventional heat exchanger the fan chassis will use a 2 piece extruded riveted "spline". This results in a light weight and strong center section.


mdd2010-001-205

ALL REV AND TUNDRA FANS

What's New:

E module castings

Why:

Allows engine mounting 1" lower for improved CG location and better handling. Aluminum castings are strong and light in weight.


mdd2010-001-206

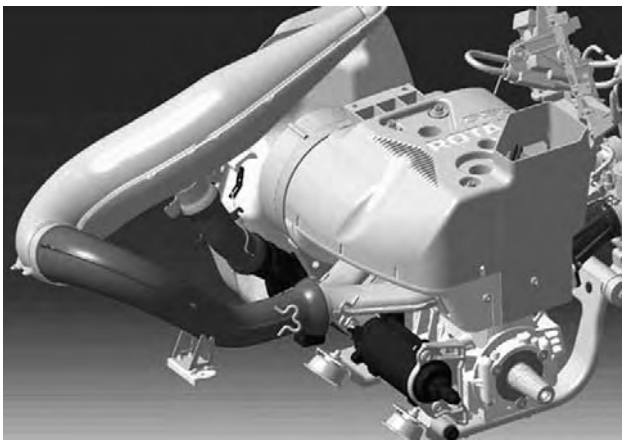
ALL REV AND TUNDRA FANS

What's New:

Tuned pipe and muffler

Why:

New design to fit 550 engine in the XP chassis, center exhaust outlet on tuned pipe reduces sound levels and improves fit in chassis.


mdd2010-001-207

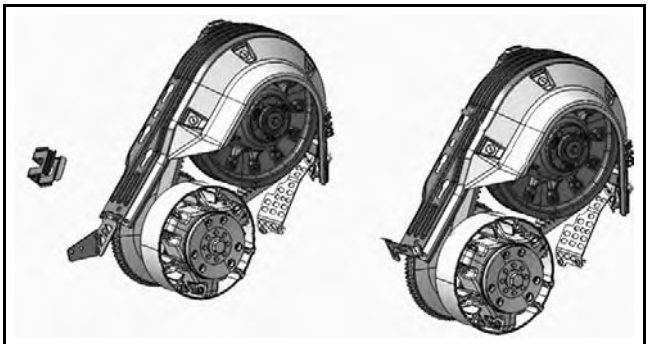
ALL REV AND TUNDRA FANS

What's New:

TRA III and LPV pulley

Why:

A major upgrade in pulley performance the TRA III is extremely reliable, has excellent shifting characteristics, along with great tune ability. The LPV driven is also durable, proven, and tuneable. Driven is on a spline so it can be easily removed for maintenance etc.



mdd2010-001-208

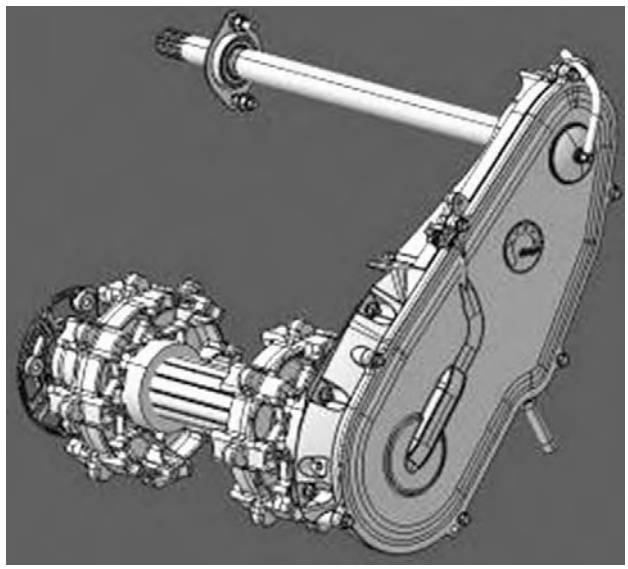
ALL REV AND TUNDRA FANS

What's New:

Countershaft and support

Why:

XP style hydroformed drive axel and magnesium chaincase keep weight to a minimum and are interchangeable with other XP chassis models. Countershaft is a small diameter hollow tubular design with a spline. This accepts LPV driven pulley and allows for X dimension to be adjusted via shims.



mdd2010-001-209

ALL REV AND TUNDRA FANS

What's New:

Countershaft support

Why:

Casting is designed to fit smaller diameter bearing used with new countershaft.

mdd2010-001-210

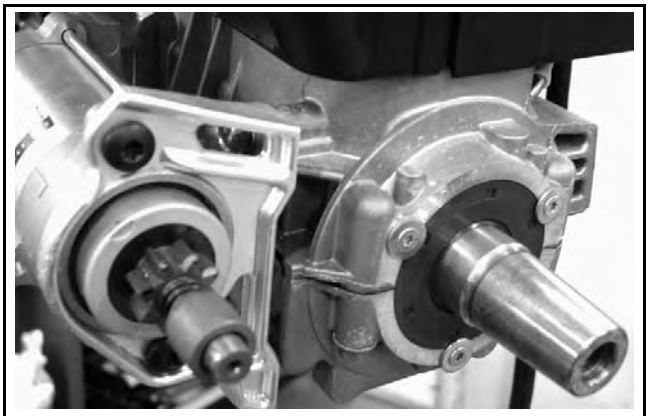
ALL 550 REV AND TUNDRA ELECTRIC START MODELS

What's New:

Electric starter

Why:

Compact high power starter similar to L/C models.



mdd2010-001-211

ALL TUNDRA MODELS

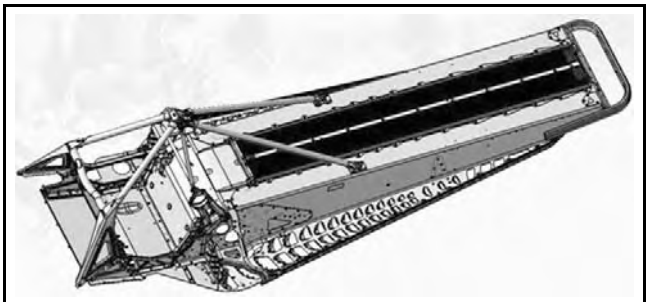
What's New:

Tundra XU chassis

Why:

To complete the XP platform consolidation.

- Better flotation
- Lighter weight
- Improved ergonomics
- Strong proven front suspension
- SC - 5M based articulated rear suspension
- Large percentage of parts interchangeability.



mdd2010-001-156

ALL TUNDRA MODELS

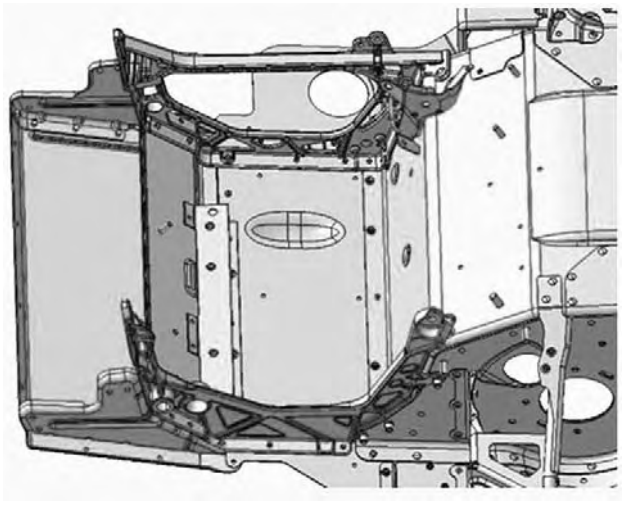
What's New:

E- module

Why:

Designed specifically to:

- Accept 550 fan engine
- Fit LTS type telescopic strut suspension
- Be easily re-moveable for servicing or replacement.



mdd2010-001-157

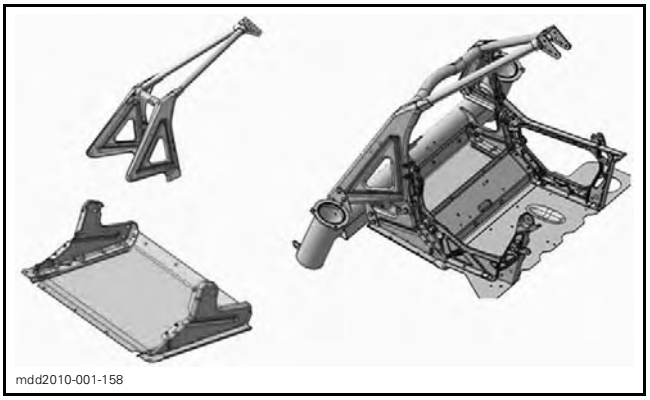
ALL TUNDRA MODELS

What's New:

S module

Why:

Strong, lightweight, re-moveable, designed to fit LTS front suspension.


mdd2010-001-158

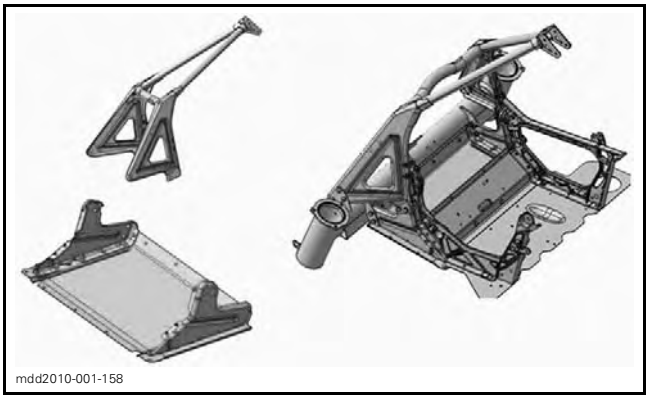
ALL TUNDRA MODELS

What's New:

LTS suspension

Why:

Tubular steel construction, for strength, telescopic tubes with replaceable shock absorbers designed for off trail riding. This suspension has very few parts below the belly pan which greatly improves flotation.


mdd2010-001-158

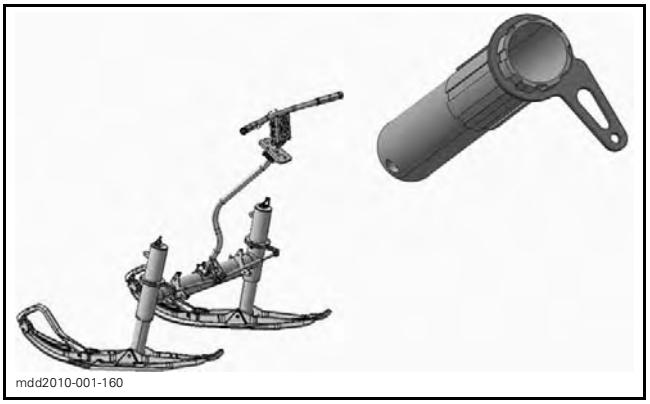
ALL TUNDRA MODELS

What's New:

Steering system components

Why:

Standard XP steering column and riser adapts to LTS front suspension. Minimal parts count and very positive steering.Turning angle has increased by 10 degrees over previous Tundra models.


mdd2010-001-160

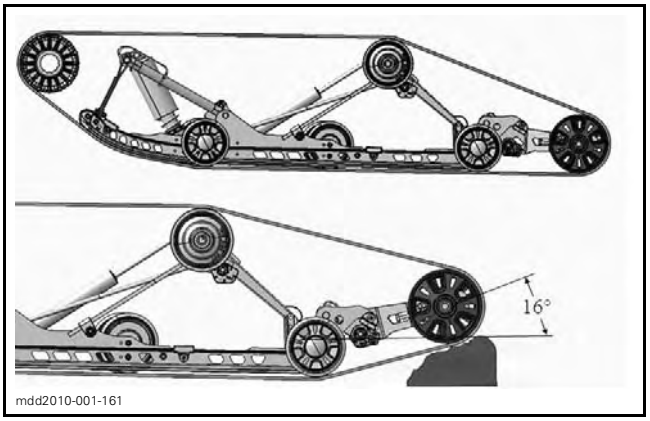
TUNDRA 154 LT

What's New:

SC-5 U rear suspension

Why:

Introduced in 2008 as a version of the SC-5 M with an articulating rear section. A shortened front arm for good weight transfer and the articulated rear arms improves performance in reverse.



mdd2010-001-161

TUNDRA 154 LT

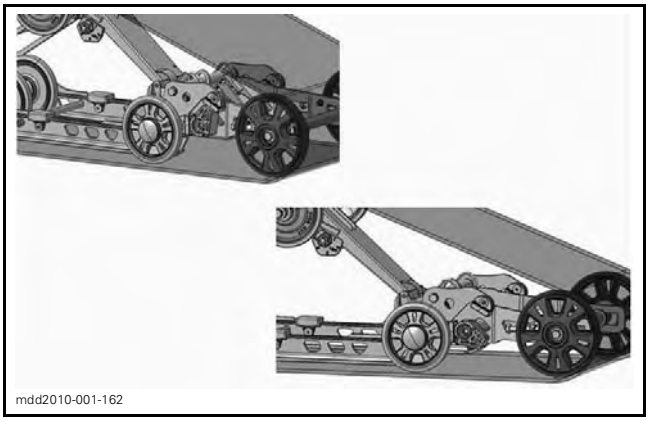
What's New:

Selectable articulation setting.

Why:

Lockable for better traction when pulling heavy loads.

Unlock for better reverse performance and extremely rugged terrain.


mdd2010-001-162

ALL REV XP FAN MODELS

What's New:

Analog and Digital gauge without CAN

Why:

This XP style gauge is a step up in visual ease of use over the Rev gauge, including analog tachometer, and speedometer, able to read in either MPH or KMH, a bar graph electric fuel gauge, and a digital odometer. Since this gauge has no CAN wires the "Mode" / "Set" buttons are inoperable. B.U.D.S must be utilized to reset the odometer and choose the MPH or KMH setting. The gauge is fan specific also do to the fact that without CAN wires the tachometer signal is determined from the ignition primary wires.

mdd2010-001-132

ALL REV X FAN COOLED MODELS

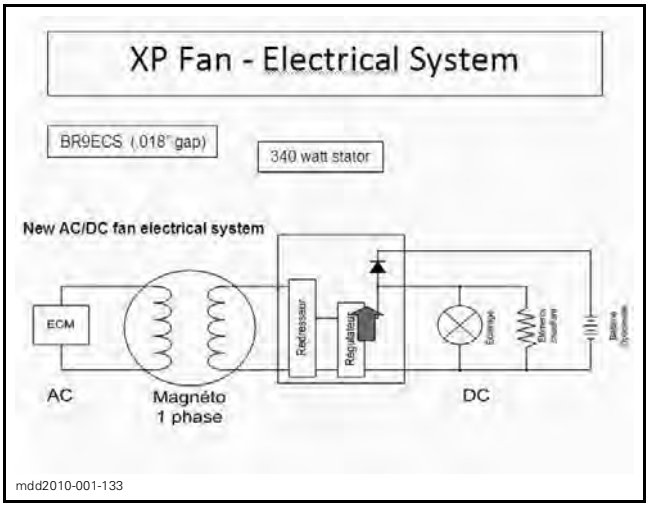
What's New:

AC and DC wiring ignition / system.

Why:

The Ducati stator incorporates two separate windings one for the ignition, and one for the vehicle's loads and charging system if required. The igniiton and RER function go through the ECU. The "lighting coil" produces single phase AC current which is fed to a voltage regulator / rectifier and all loads are DC in the chassis. If the vehicle is not equipped with electric start, precautions should be taken before connecting sensitive electrical equipment {ie cell phones, laptops, GPS devices etc} to any DC power wire on the vehicle as voltage fluctuations may occur.

Example : if both headlamps fail or were disconnected the DC voltage may be abnormally high.



ALL L/C SUMMIT MODELS

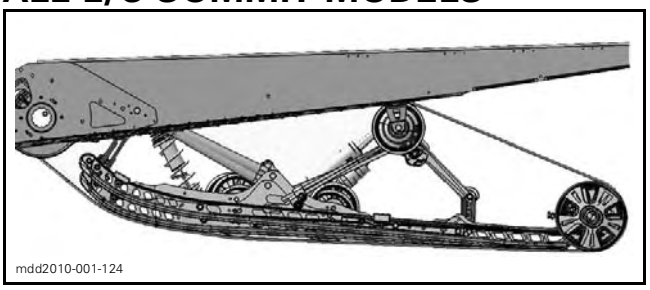
What's New:

Refined SC-5M rear suspension

Why:

The goals were:

- To improve comfort while riding un-groomed trails
- Eliminate and reduce "sag" in rear suspension
- Lighter more playful feel
- Easier to side hill, and turn out down hill
- Better for "boondocking".



ALL L/C SUMMIT MODELS

What's New:

Longer center shock

Why:

35 mm longer center shock allows 2" more rail travel, a wider range of weight transfer, and greatly reduces rear suspension "sag".

The limiter strap can now be adjusted shorter or longer to alter the characteristics of the rear suspension.

Longer strap {hole # 4} = more weight transfer, very little sag, lighter steering, best for boondocking and " turning out". Shorter strap { hole # 2} similar to 2009 = less weight transfer, heavier steering, better for "highmarking".

The strap will come in hole # 3 from the factory.

mdd2010-001-276

ALL L/C SUMMIT MODELS

What's New:

Optional "Quick adjust kit" for Summit's.

Why:

This kit allows easy adjustment of the limiter strap length and is available under (P/N 860 200 402).

mdd2010-001-125

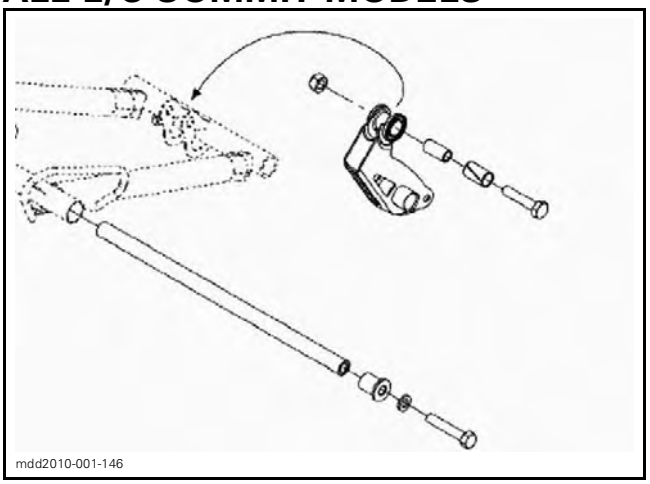
ALL L/C SUMMIT MODELS

What's New:

Rocker arm's.

Why:

New shape to give correct motion ratio with longer center shock absorber mentioned above.



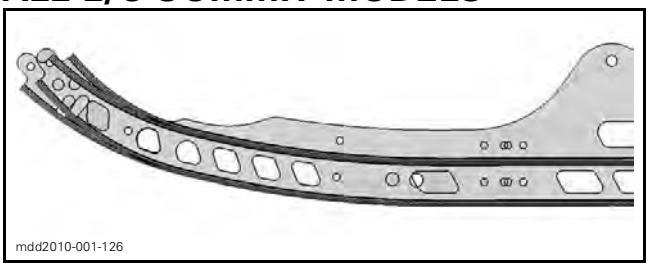
ALL L/C SUMMIT MODELS

What's New:

Suspension rails

Why:

Tip of rails has a steeper angle to them to give proper clearance with track with new approach angle.



ALL L/C SUMMIT MODELS

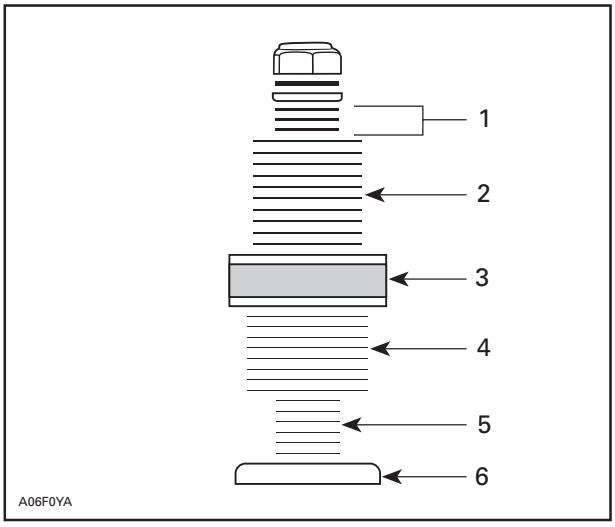
What's New:

Shock valving

Why:

Valving has been optimized for increase in rail travel.

NOTE: Summit X and XRS valve specs are inspecification section of book.



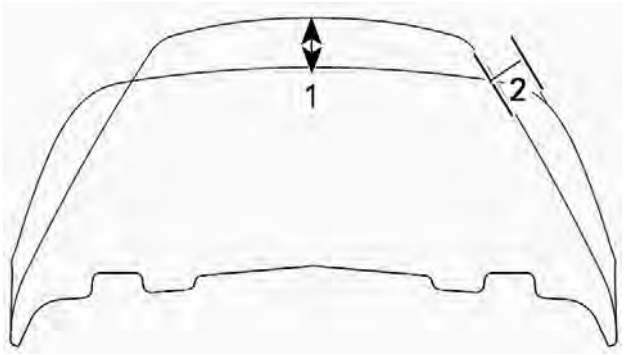
SUMMIT X AND XRS MODELS

What's New:

Seat

Why:

1.25" **[1]** taller and 1.5" **[2]** narrower to allow easier transition from sitting to standing. Narrower design allows easier movement when boondocking and sidehilling. Extra foam adds comfort in the bumps.



mdd2010-001-127_a

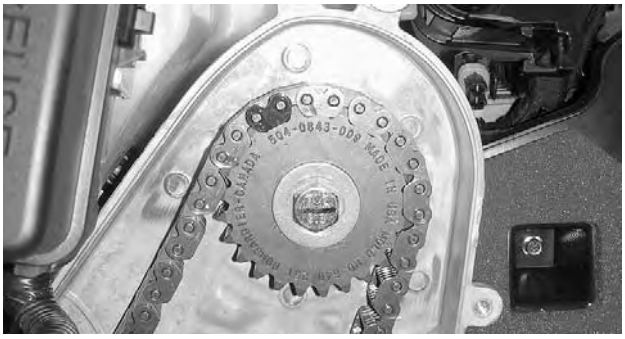
ALL 154" SUMMIT 800R MODELS

What's New:

19 tooth top gear.

Why:

MY 08 and 09 used 21/45 gearing, MY 2010 154"= 19/45. By reducing overall gear ratio, belt life will be slightly improved in deep snow and boon-docking conditions. This change will reduce overall top speed. Gearing can always be changed at customer's expense to optimize performance and belt life depending upon riding conditions and styles. Summit 146 and 163 gearing remain the same. Gearing chart is in Spec section.


mdd2010-001-999

REV-XP

What's New:

Summit X-RS "Racing Special" Hillclimb, the same sled issued to X-Team hill climb racers. Includes the 800R Power-TEK, Rev-X narrow seat, the premium multi-function gauge cluster with record mode, racing brake with steel braided hose, 16" x 154" x 2.25" (actually 2.31 in.) PowderMax track, wider front end (41.6 in. or 43.3 in.), chrome moly lower A-arms, suspension rail stiffeners, 4th rear idler wheel, 50 mm (approx 2 in.) forward steering, Pilot 6.9 skis, easier steering, refined SC-5M rear suspension, Pro 40 R piggy-back shocks and more.

mdd2010-001-293

Why:

To offer a snowmobile for the most hard-core Hillclimb enthusiasts, embodies BRP's philosophy of actually selling what it races.

REV-XP AND REV-XR

What's New:

Renegade has been promoted to its own model segment. The models offered have been expanded featuring standard Renegades aimed more towards on trail use and the new Renegade Backcountrys aimed more towards off trail use.

Why:

BRP is making the popular Renegade its own model, rather than an MX Z feature package. BRP research showed that the vast majority of Renegade owners use their vehicle as a long track trail sled. The standard 2010 Renegade models will be more biased towards on-trail riding than off. This includes a change to a standard 15 inch (38 cm) wide track for the "on trail more" version Renegades.

For the smaller, but growing group who see the MX Z Renegade as a good base for an "off trail more" or "freeriding" sled, BRP is offering special Backcountry and Backcountry X packages. They are more biased towards off-trail riding, with a 16 inch (40 cm) wide Powdermax track with 1.75 inch (4.5 cm) profile lugs, lower gearing, mountain belt, Pilot 6.9 mountain ski's, adjustable ski stance and more.

mdd2010-001-128

REV-XP

What's New:

Backcountry and Backcountry X, available with either 600HO E-TEC or 800R Power-TEK. The Backcountrys were designed and developed for riders that seldom ride on trails, these riders are considered "freeriders". This type of rider most often rides in deeper snow and breaks their own trail, this type of riding is commonly known as boondocking. The Backcountry X has been developed for the most aggressive riding freeriders.

Why:

In the past, freeriders have been creating their own snowmobiles just for their backcountry adventures. The Renegade Backcountrys aim to deliver just what these extreme riders want right from the factory, a shorter length track snowmobile with Summit powder features.


mdd2010-001-123

MXZ-XRS

What's New:

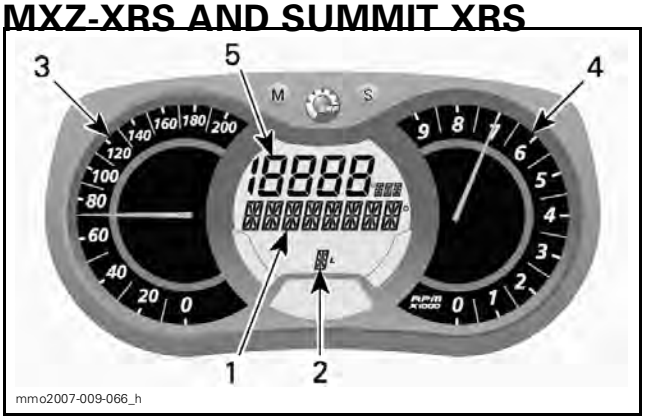
MX Z X-RS "Racing Special", a consumer sled built from the stock 600 RS race sled. Available with 600HO E-TEC or the 800R Power-TEK. The MX Z X-RS model shares its chassis and many other features with the MX Zx 600RS snocross / cross-country race sled, including chassis braces, suspension braces, suspension components, steering components and KYB Pro 40 & Pro 40 R piggy-back shocks.

Why:

To offer a snowmobile for the most hard-core enthusiasts who want the features, technology and look of the MX Zx 600 RS snocross racing sled, with a more aggressive calibration than the X to make it the ultimate rough trail consumer snowmobile. Embodies BRP's philosophy of actually selling what it races.


mdd2010-001-147

MXZ-XRS AND SUMMIT XRS



LAP RECORD MODE
1. *Lap record mode display*
2. *Sessions (laps)*
3. *Vehicle speed*
4. *Engine revolution per minute (RPM)*
5. *Preselected function*

What's New:

Both the MX Z X-RS and Summit X-RS Hillclimb have a new multi-function gauge for 2010. The new gauge features a standard built-in lap record mode.

This gauge is the high sampling rate type similiar to the XRS racing unit. Below are the differences between the two. The low sampling rate type is for the PAC accessory module.

- Low sampling rate = 1 sample / 1 second à total record ~ 15 minutes
- High sampling rate = 1 sample / 0,2 second à total record time ~ 3 minutes

Note: The optional accessory gauge engine temperature module (P/N 860 200 076) and premium gauge module (P/N 860 200 077) will still work for the temperature bar graph and compass / temperature modes to be activated.

Why:

To give the X- RS the high sampling rate lap record mode as a standard feature

MXZ-XRS


mdd2010-001-148

What's New:

KYB Pro 40 center and rear shocks, come on the MX Z X-RS. The KYB Pro 40 center and rear shocks that come on the MX Z X-RS are the same shocks that are used on the 600RS and feature a 16mm diameter rod sub assembly. There are two separate damping adjusters on this shock. The two adjusters are up by the piggyback reservoir for compression damping, the large 17 mm adjuster (approx 2½ turns) is for high speed compression and the smaller knob style adjuster (approx 20 clicks) is for low speed compression damping.

The Pro 40 shocks have the capability of going from the softest adjuster positions which is comparable to the standard X model shock calibration, to the hardest positions which is at about the mid-point between the standard X model and the 600RS race chassis shock calibration.

Why:

Center and rear race shocks come standard on the MX Z X-RS to make it the ultimate rough trail consumer snowmobile.

MXZ-XRS

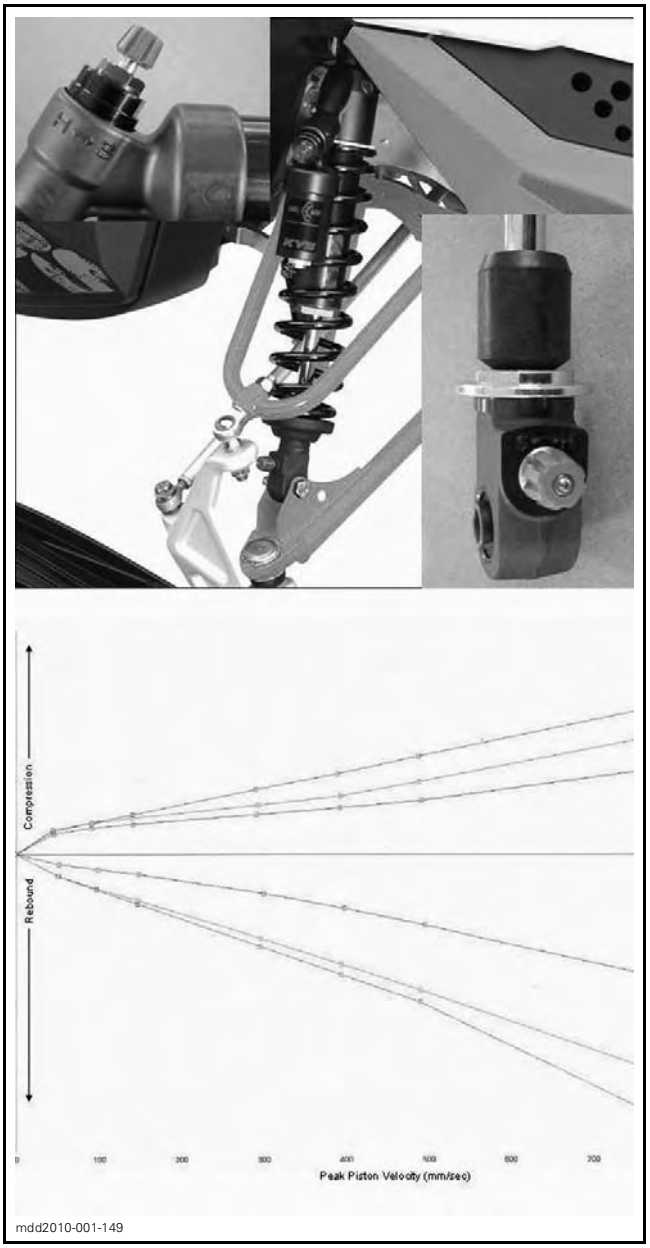
What's New:

KYB Pro 40 R shocks, used on both the MX Z X-RS and Summit X-RS Hillclimb. The Pro 40 R front suspension shocks are the same shocks used on the 600 RS and feature a 16 mm diameter rod sub assembly and have 20 mm more travel than the standard X front shocks. The Pro 40 R is a piggy back shock and it comes with new black and red coloration. There are three separate damping adjusters on this shock. There are two adjusters up by the piggyback reservoir for compression damping, the large 17 mm adjuster (approx 2½ turns) is for high speed compression and the smaller knob style adjuster (approx 20 clicks) is for low speed compression damping. For rebound adjustment there is another knob style adjuster (approx 22 clicks) located down by the shock rod mounting eyelet.

Note: The Rebound adjuster does have a small amount of input on the compression damping also.

The Pro 40 R shocks have the capability of going from the softest adjuster positions which is comparable to the standard X model shock calibration, to the hardest positions which is at about the mid-point between the standard X model and the 600 RS race chassis shock calibration. See the following MX Z X-RS Pro 40 R shock dynamometer curve chart to see the wide range of damping adjustability, the middle graph line shows the damping curve in the standard out of the crate clicker settings.

Note: The curve chart can vary depending on if one or all of the adjusters are being changed at the same time.



Why:

Front race shocks come standard on the MX Z X-RS and Summit X-RS Hillclimb to make the ultimate rough trail and hillclimb consumer snowmobiles.

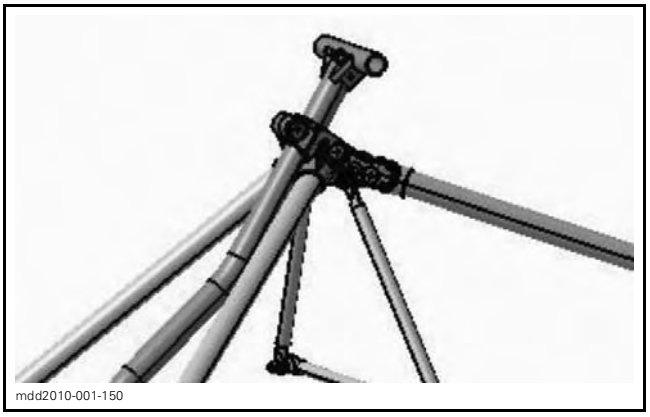
What's New:

Both the MX Z X-RS and Summit X-RS Hillclimb have the steering tube positioned 50 mm (approx 2 inches) further forward. To accomplish this, the steering tube passes the front member towards the front of the front member rather than behind it.

Why:

For easier stand-up riding that ultimate rough trail and extreme mountain riders commonly prefer.

MXZ-XRS



mdd2010-001-150

What's New:

MX Z X-RS chassis, made from many of the same parts that come on the MX Zx 600RS race chassis. The lighter parts in the illustrations above and below are parts in common with the standard XP chassis, the darker areas are parts that are in common with the 600RS race sled chassis.

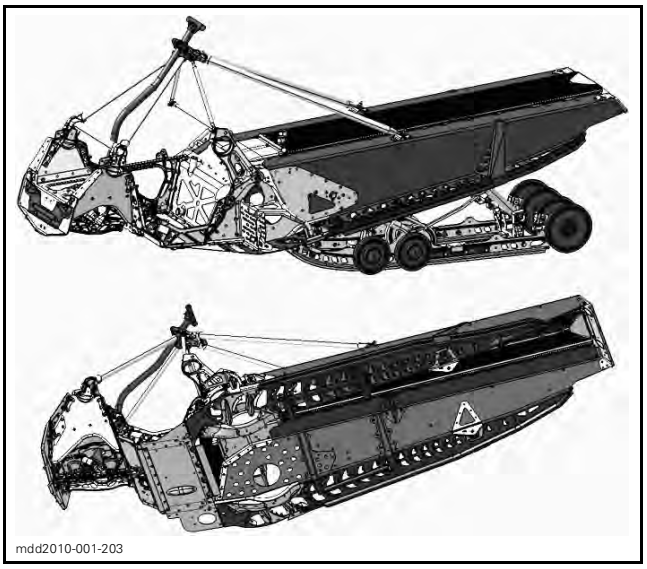
MX Z X-RS chassis features:

- RS Reinforced tunnel
- RS Internal and external frame brackets
- RS Suspension rail stiffeners
- RS Steering tube
- RS Upper steering tube support (50 mm or approximately 2 inch forward)
- RS Idler wheels
- RS Front member brackets
- RS 4th idler wheel
- RS Chrome Moly lower A-arms

Why:

To offer a consumer chassis for the most aggressive rough trail rider.

MXZ-XRS



mdd2010-001-203

ALL REV XR 1200

mdd2010-001-134

What's New:

1200 overheat gauge logic

Why:

Last season if a 1200 overheated do to poor snow conditions or very slow driving speeds a two step logic was used to protect the engine and inform the driver.

Step 1. At 95°C / 205°F engine protection was initiated by the ECM and the customer was not made aware of this. Ex: Ignition timing altered, fuel added etc.

Step 2. At 110°C / 230°F temp light was on 100% and a beep was heard every 30 seconds. This did not prove to be adequate to inform the driver the engine is over heating and many continued to drive in those conditions / riding style. As noted in this section the cooling system has received revisions to reduce operating temperatures this year. Along with these changes a new gauge strategy is more noticeable.

Step 1. 95°C / 205°F a revised engine protection strategy is initiated no notice to driver.

Step 2. 110°C / 230°F Four loud beeps every 30 seconds and Premium gauge scrolls "engine overheat" Low end gauge temp light is on 100%.

Step 3. 118°C / 245°F Loud 2 HZ beeps for 5 seconds and 5 seconds silence and it repeats, low end gauge = temp light flashes, Premium gauge= scrolling "engine overheat", both rev limit engine to 5500 RPM. If temperature remains at this level if idled for more than 30 seconds engine will shut off.

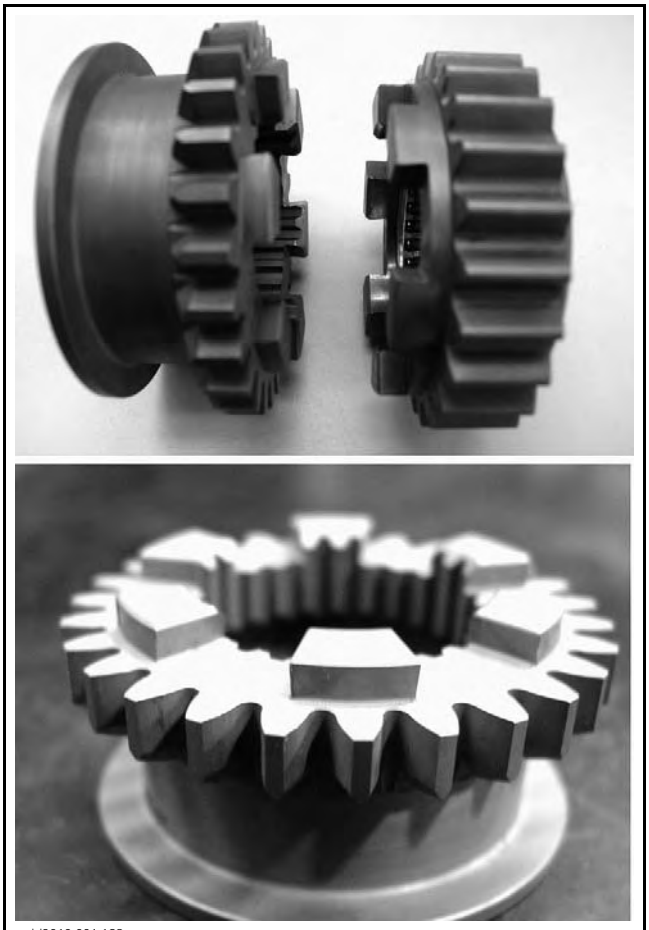
ALL REV-XR

What's New:

Two transmission gears.

Why:

To reduce the possibility of the transmission slipping into neutral while driving at steady speeds for long periods of time. A new undercut on the upper gear's mating dogs on all Rev-XR manual and electric reverse transmissions. The under cut is now 5 degrees vs 3.5 degrees. These gears are not retrofitable.



mdd2010-001-138

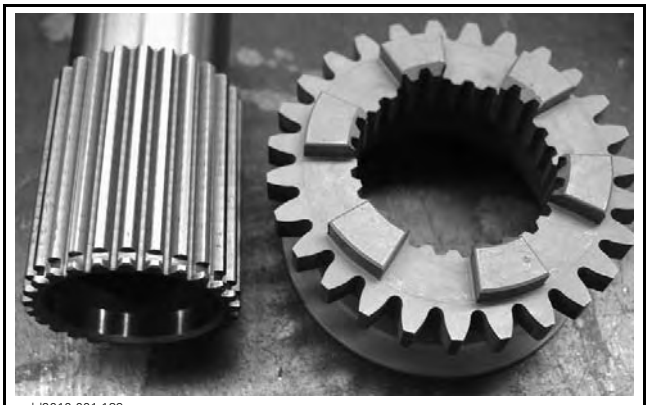
ALL REV XR

What's New:

Coupler shaft

Why:

The radial clearance has been reduced between the sub shaft and gear to reduce freeplay. This eliminates the chance of the gear "walking" off the under cut while driving. This part is not retrofitable.



mdd2010-001-139

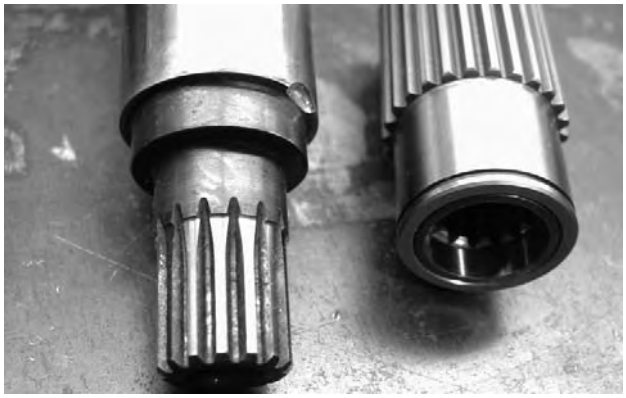
ALL REV XR

What's New:

QRS countershaft

Why:

The spline tolerance between countershaft and coupler are tighter. This was changed to reduce radial freeplay and runout at high RPM. These parts will not retrofit previous years.


mdd2010-001-140

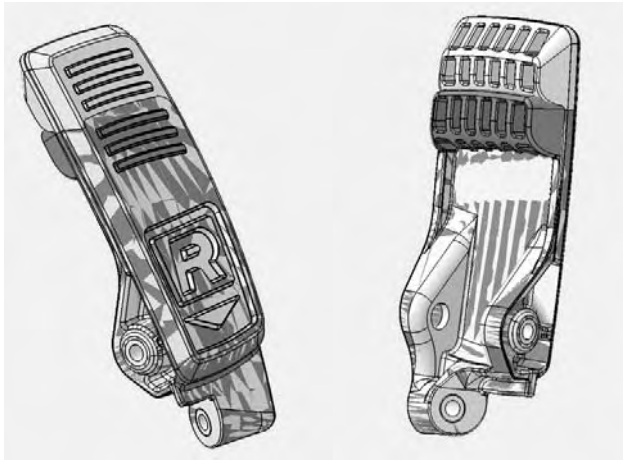
ALL MANUAL SHIFT REV XR

What's New:

Shift lever

Why:

Lever has been lengthened to reduce the effort needed to shift the transmission from forward to reverse. This part is retrofitable.



mdd2010-001-141

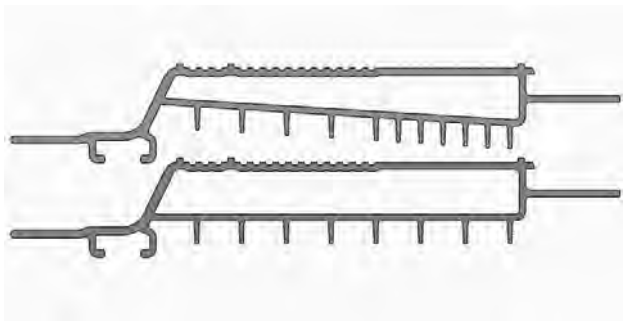
ALL REV XR

What's New:

Rear heat exchanger

Why:

The heat exchanger shape has changed from a trapezoid to rectangular, this creates more internal volume {6 L} to improve cooling in slow speed and or poor snow conditions.


mdd2010-001-277

ALL 1203 MODELS.

What's New:

TRA "buttons (P/N 417 223 271)

Why:

New thicker design to reduce clearance between towers from torsional impulses. This will reduce wear and clutch noise.


mmr2009-082-001

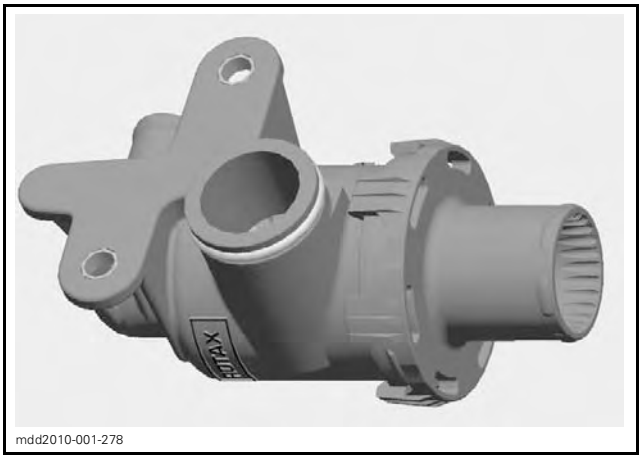
RUNNING CHANGE IN REV XR 1200'S

What's New:

Thermostat

Why:

Now opens at 65°C {150°F} rather than 75°C {170°F} to lower engine operating temperatures and reduce possibility of over heating in poor snow conditions or extremely slow speed riding.


mdd2010-001-278

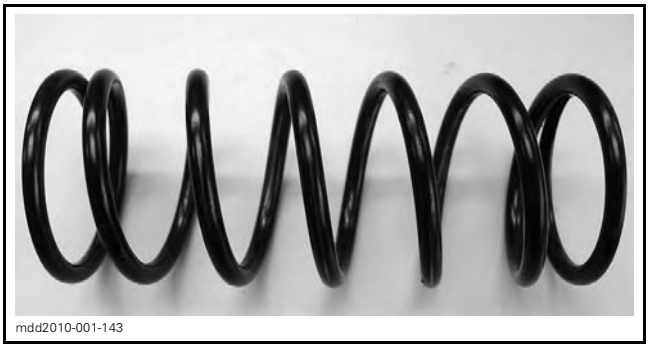
ALL REV XR 1200'S

What's New:

TRA spring calibration

Why:

Yellow / Orange spring has same start rate as previous GTX, but a lower finish rate. Engagement RPM remains at 2500-2800 RPM however shift RPM is slightly lower This will reduce the possibility of over rev under hard acceleration.


mdd2010-001-143

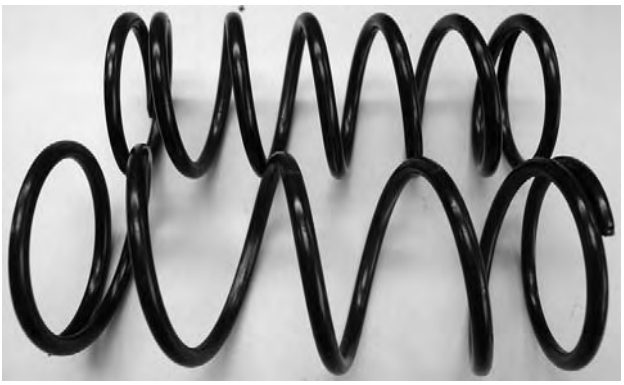
ALL REV XR 1200'S

What's New:

QRS spring

Why:

Now pink vs previous beige, this spring is softer to reduce pulley side force. It reduces engine braking effect which allows improved "freewheeling", improving fuel consumption, and lowers shift RPM slightly.


mdd2010-001-144

ALL REV XR 1200'S

What's New:

IAC mapping

Why:

Idle Air Control valve mapping is changed to reduce engine "braking" effect. Minor change now opens IAC from 30 kms down vs 18 kms and down previously.


mdd2010-001-279

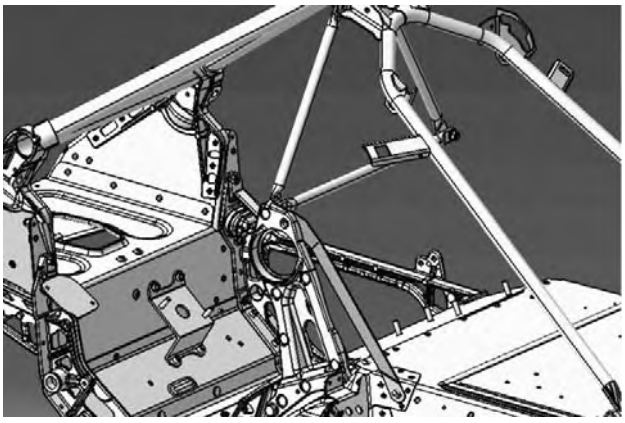
ALL REV XU MODELS

What's New:

QRS support reinforced

Why:

A reinforcing strut has been added to better support the QRS tower.


mdd2010-001-163

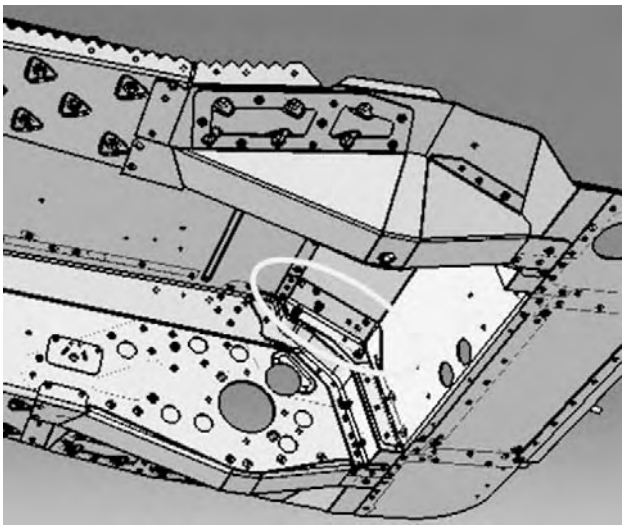
ALL REV XU MODELS

What's New:

Chassis reinforcements

Why:

A reinforcing plate has been added to tunnel to increase the strength of the QRS support area. This will improve rigidity of this support.



mdd2010-001-164

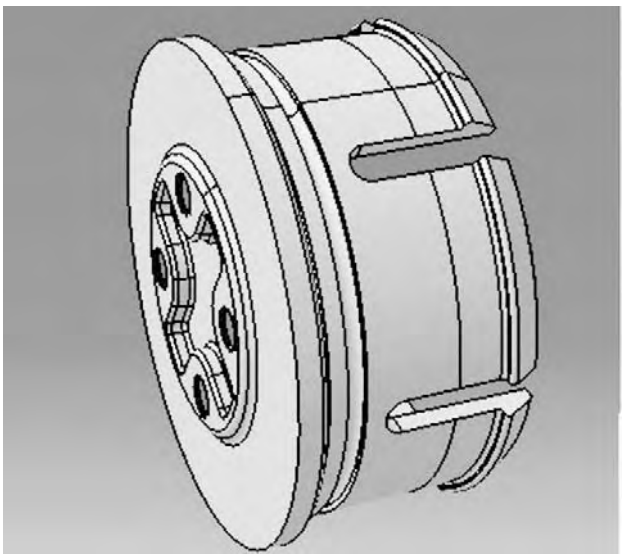
ALL REV XU MODELS

What's New:

Drive axel end cap

Why:

O ring groove is now machined wider to allow room for compression of the "O" ring to ensure a leak proof seal. The oil now stays in the transmission.



mdd2010-001-165

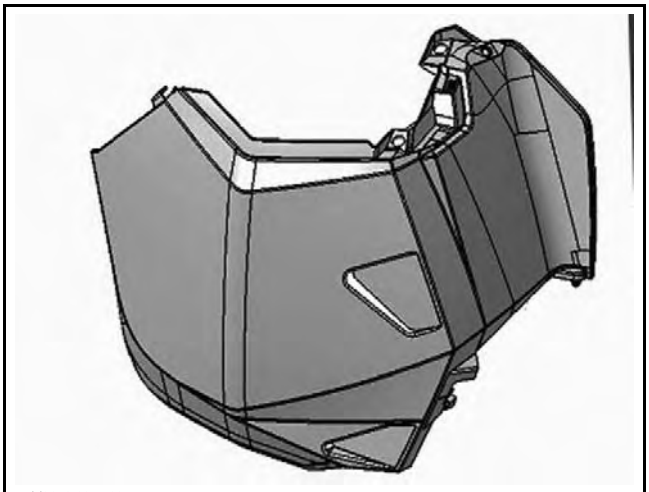
ALL REV XU MODELS

What's New:

Body panels

Why:

A new more durable material is used to produce the side panels. This material is more flexible in cold temperatures and resists cracking. Changes have been made to improve the fit also.



mdd2010-001-166

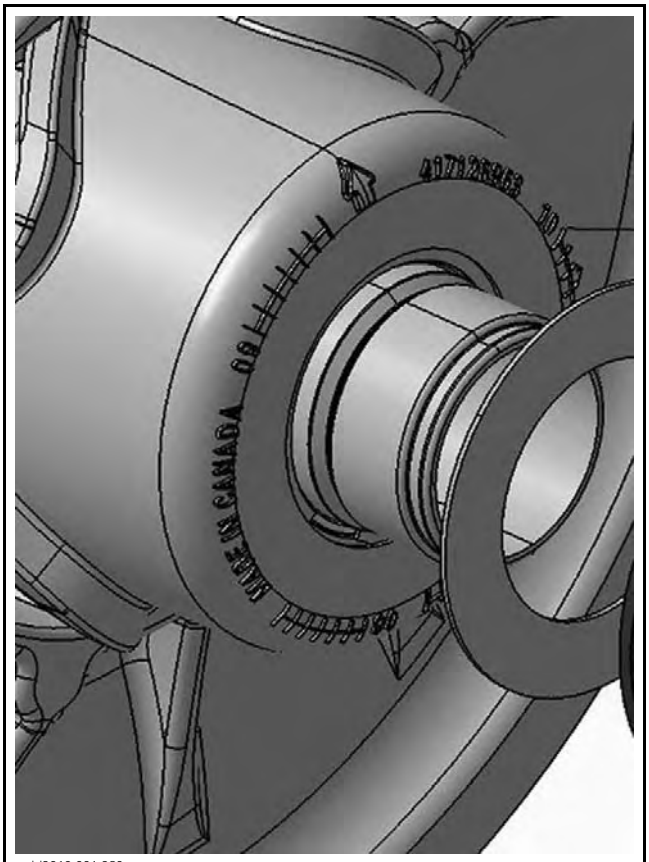
ALL XU MODELS

What's New:

QRS countershaft

Why:

New longer design to fit new belt adjuster as described in the All Rev X section.



mdd2010-001-280

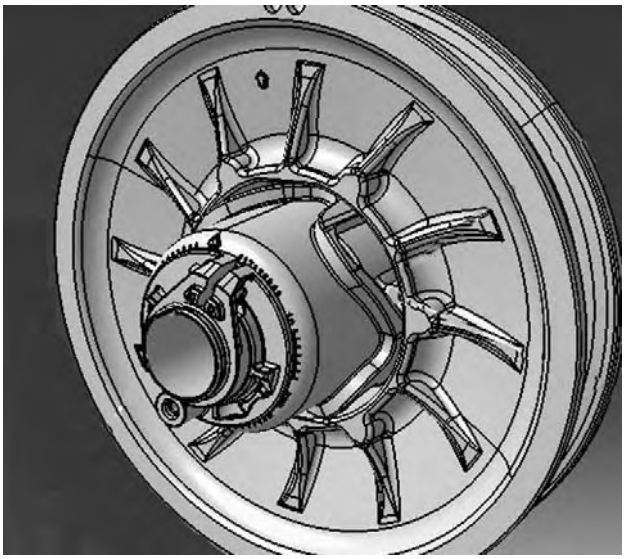
ALL XU MODELS

What's New:

QRS belt adjuster.

Why:

3rd generation design is simple, secure and light, separates the belt change function from the belt deflection adjustment. As described in What's new All Rev X section.



mdd2010-001-168

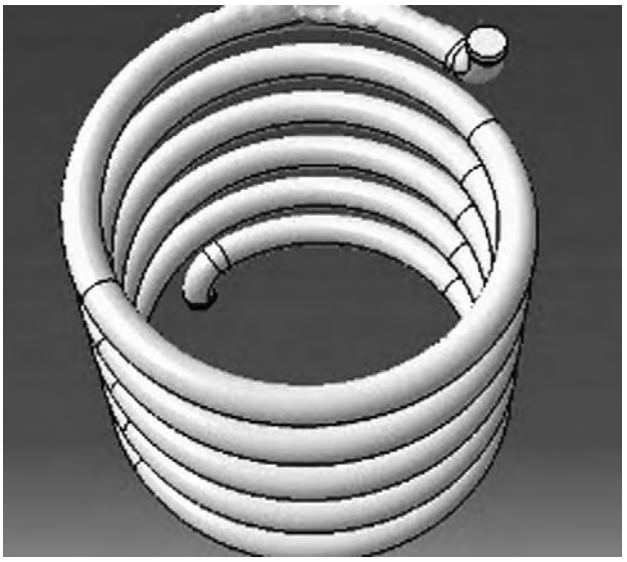
ALL XU MODELS

What's New:

QRS spring

Why:

Torsion spring now used to reduce possibility of roller damage when shifting under heavy loads.



mdd2010-001-169

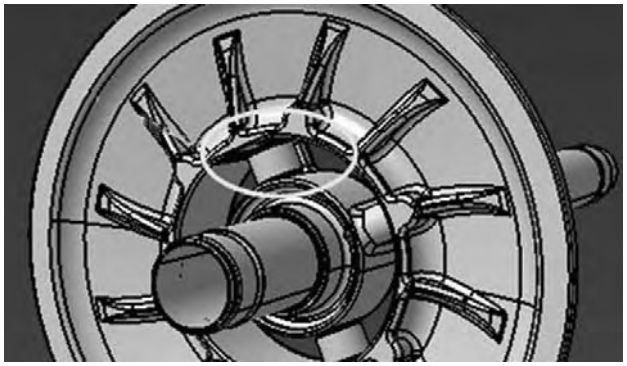
ALL XU MODELS

What's New:

QRS rollers

Why:

More durable material used in rollers to reduce possibility of damage under heavy loads and downshifts.



mdd2010-001-170

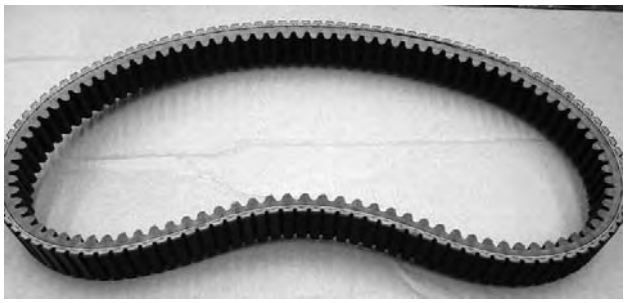
ALL XU MODELS

What's New:

Drive belt

Why:

(P/N 417 300 383) now used vs (P/N 417 300 197), this belt is wider to allow more adjustment range in QRS pulley system.



mdd2010-001-281

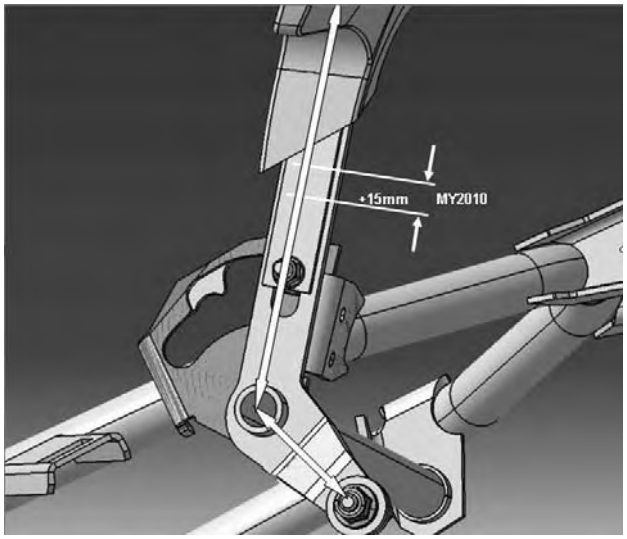
ALL XU MODELS

What's New:

Shift lever arm

Why:

Lever-arm has been lengthened 15 mm to decrease the force needed to shift the transmission into gear.



mdd2010-001-172

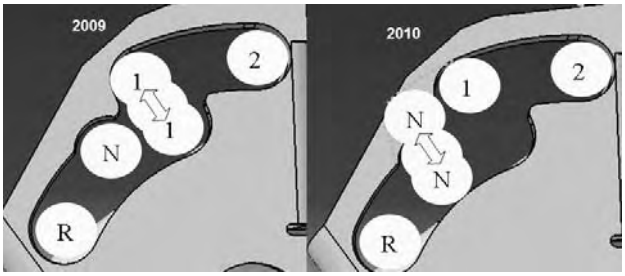
ALL XU MODELS

What's New:

Shift lever guide plate

Why:

The shift lever pattern has been redesigned to ease shifting from neutral to first gear.



mdd2010-001-167

ALL XU MODELS

What's New:

Shift drum

Why:

Shift drum groove has been modified for easier shifting. Larger radius and shallow angles allow easier movement between gears.


mdd2010-001-171

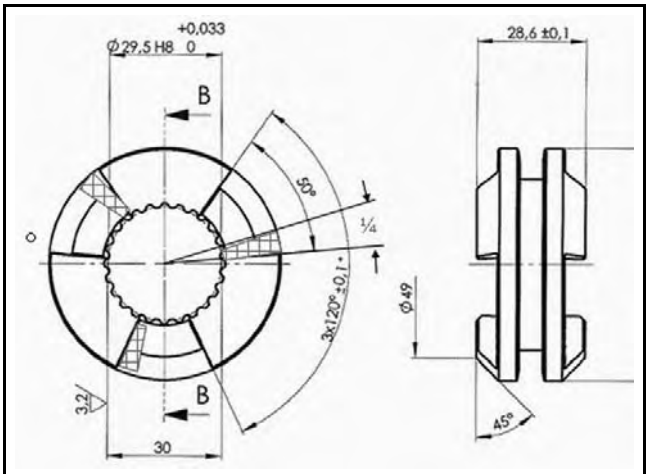
ALL XU MODELS

What's New:

Transmission gears

Why:

Reverse gear and sliding gear have larger gap for engagement "dogs" to align. Much easier to shift into reverse and disengage.



mdd2010-001-173

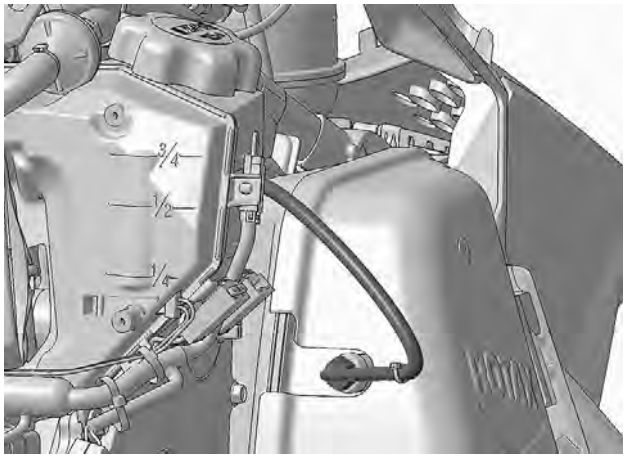
XU SDI MODELS

What's New:

EGT sensor.

Why:

A new improved vibration resistant sensor will be introduced, (same as XP 2010). Anti seize grease will be used to ease removal. Part will retrofit.



mmr2009-074-016

ALL V-810 MODELS

What's New:

TRA "buttons"

Why:

New thicker design to reduce clearance between towers from torsional impulses. This will reduce wear and clutch noise.


mmr2009-082-001

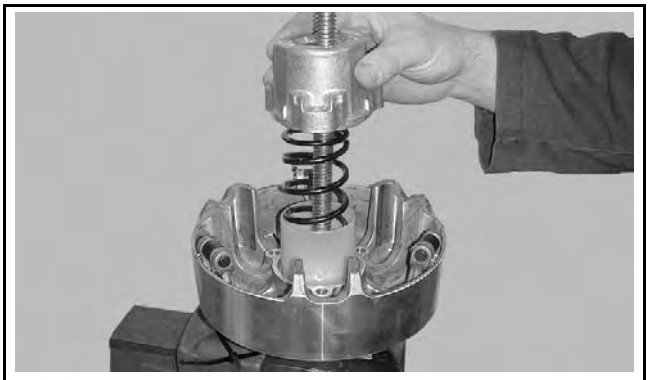
ALL V- 810 MODELS

What's New:

TRA spring.

Why:

Stronger start rate spring used to off set "thicker" button's installed in clutch. This ensures clutch will disengage fully and not "creep" at idle.


mmr2008-041-111

Engine

ROTAX®

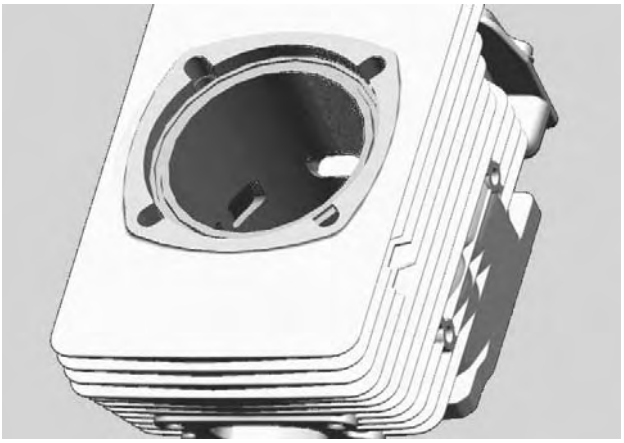
TYPE 552 USED IN SKANDIC'S

What's New:

Cylinder with sleeve

Why:

New diameter (+0,01mm), .{000397"} larger to ensure proper piston / cylinder wall clearance Improved resistance to piston seizure when new or under heavy loads.



mdd2010-001-174

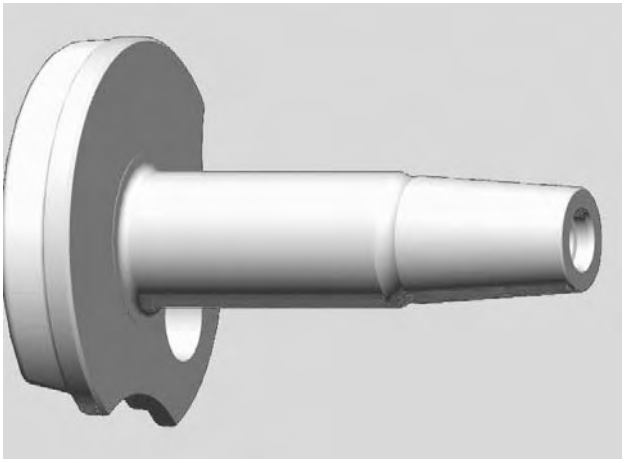
TYPE 552 USED IN XP

What's New:

Crankshaft assy.

Why:

Longer crankshaft PTO side to fit the XP chassis and new connecting rod to to fit the 25 mm caged piston pin bearing.



mdd2010-001-175

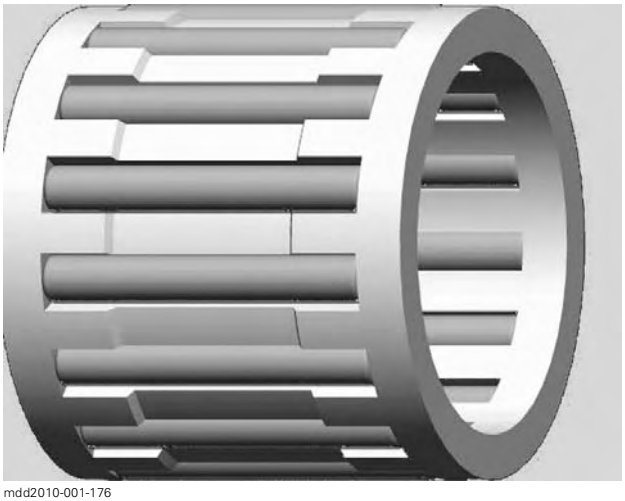
TYPE 552 USED IN XP

What's New:

Piston pin bearing

Why:

Caged bearing is used to reduce friction and improve durability in severe conditions.



mdd2010-001-176

What's New:

Piston pin

Why:

Long term gas nitrated to improve durability and avoid pitting, "dark in color".

TYPE 552 USED IN XP

mdd2010-001-282

What's New:

Intake socket

Why:

To fit in new XP FAN chassis.

TYPE 552 USED IN XP

mdd2010-001-177

What's New:

Rewind starter

Why:

New starter housing with integrated oil pump flange

TYPE 552 USED IN XP

mdd2010-001-178

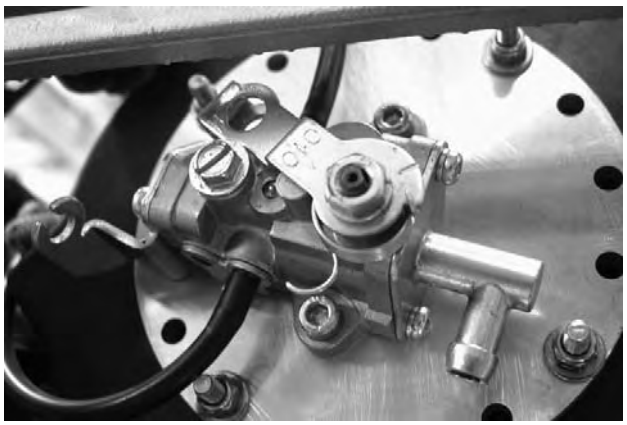
TYPE 552 USED IN XP

What's New:

Oil pump

Why:

New design (direct driven) and new oil delivery characteristic



mdd2010-001-179

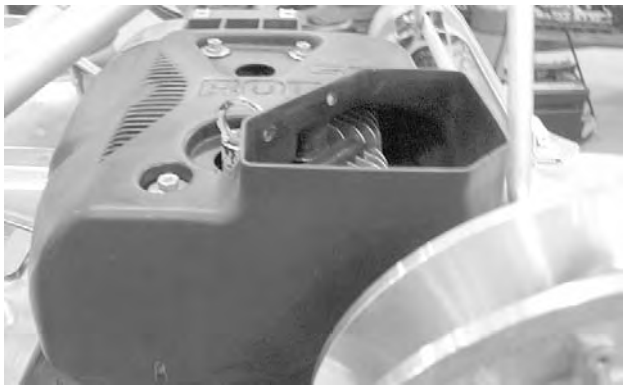
TYPE 552 USED IN XP

What's New:

Cylinder cowlings

Why:

To fit in the XP FAN chassis, and reduce under hood heat by ducting heat to outside. Foam added under engine cowl to reduce sound levels also.



mdd2010-001-180

What's New:

Cylinder with sleeve

Why:

New diameter (+0,01mm), {.000397"} larger to ensure proper piston / cylinder wall clearance Improved resistance to piston seizure when new or under heavy loads.

TYPE 593

mdd2010-001-181

What's New:

Piston pin

Why:

Long term gas nitrated to improve durability and avoid pitting. Part is retrofitable

TYPE 593

mdd2010-001-182

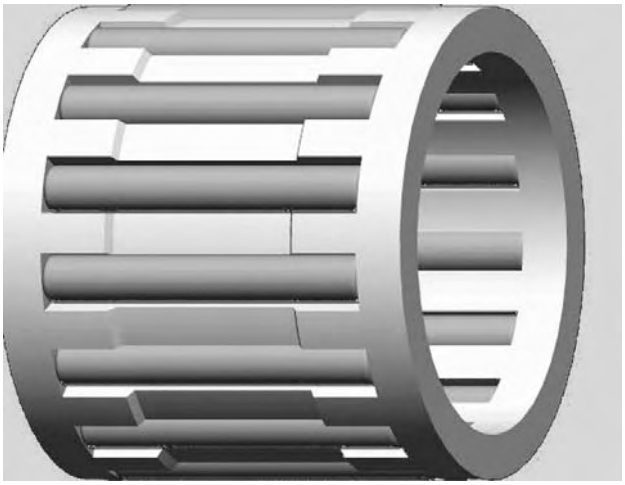
TYPE 593

What's New:

Piston pin bearing

Why:

Caged bearing is used to reduce friction and improve durability in severe conditions. Part is retrofitable.


mdd2010-001-176

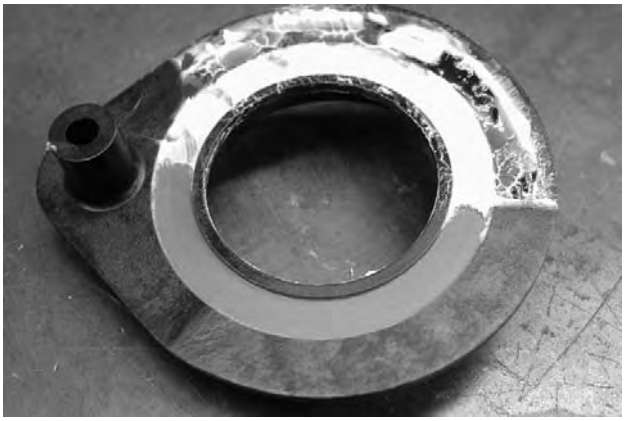
TYPE 593 SDI

What's New:

Starter Pawl

Why:

New lubrication slot for improved lubrication to avoid "friction welding" between rope sheeve and pawl. Part is retrofitable.


mdd2010-001-183

TYPE 593 E-TEC

What's New:

Nicasil cylinder

Why:

- New RAVE lubrication bore for more targeted lubrication, less oil is needed, less carbon deposits. Two new RAVE ventilation bore, improves RAVE response.
- New cyl will retrofit older E-Tec's, older cyl must not be used on MY 2010 vehicles.


mdd2010-001-184

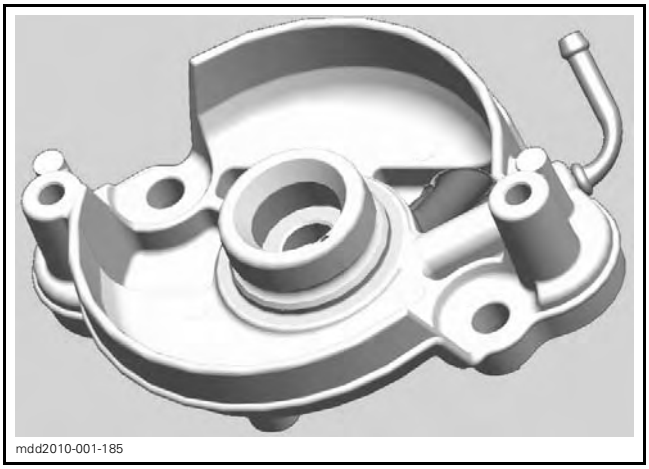
TYPE 593 E-TEC

What's New:

Valve rod housing assembly.

Why:

New RAVE lubrication bore in casting, again less oil can be used and results in less carbon buildup.



mdd2010-001-185

TYPE 593 E-TEC

What's New:

Gasket (RAVE valve rod housing)

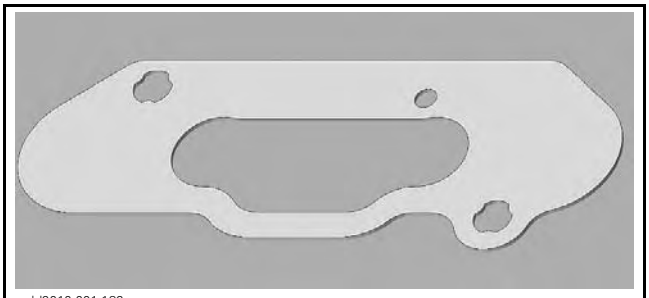
Why:

Now with hole for new RAVE lubrication bore.

CAUTION: Do not mix up with old gasket (no RAVE lubrication)

NOTE: Gasket sets will include both RAVE rod housing gaskets, use appropriate gasket to match cylinder.

- MY 2010= hole
- MY 2009= no hole.



mdd2010-001-186

TYPE 593 E-TEC

What's New:

Exhaust valve

Why:

New design without slot for RAVE ventilation (RAVE ventilation bore is in the cylinder).

mdd2010-001-187

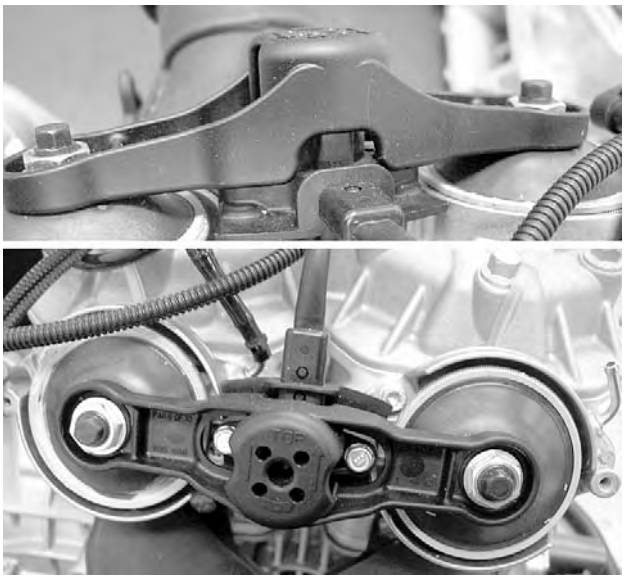
TYPE 593 E-TEC

What's New:

Rave link bar with RAVE position sensor assembly.

Why:

RAVE link bar and RAVE position sensor are "paired" as an assembly for less variation in tolerance, output readings are more accurate. Part is retrofitable.


mdd2010-001-188

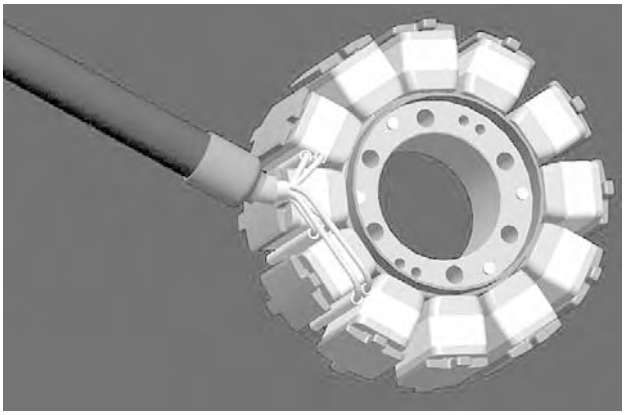
TYPE 593 E-TEC

What's New:

Stator assembly.

Why:

Improved winding for better reliability. Part is retrofitable.



mdd2010-001-189

TYPE 593 E-TEC

What's New:

Ignition coil assembly.

Why:

Improved winding process, and more rigid quality control. Results in a more reliable coil.

mdd2010-001-190

TYPE 593 E-TEC


mdd2010-001-191

What's New:

ECM mapping

Why:

With BRP's commitment to continual improvement philosophy, a number of improvements have been made to the "mapping" in the 2010 E-TEC vehicles. These changes are aimed at improving the drivers "quality of experience", with their E-TEC vehicles.

- Deceleration will now be more linear, or less pronounced upon "throttle let off".
- Less flutter or fluctuation noticeable in the 4500 RPM range. Most riders do not even notice this as it is in a very slow riding speed range, in any event it will run smoother in this range now.
- Improved manual starting in very cold temperatures -40°F/°C , also more voltage will be supplied to the fuel pump in extremely cold temperatures.
- Auto stop strategy: after 5 minutes of idling with no TPS movement the engine will shut down, as in our 4 -TEC vehicles.
- The battery relay is now activated at 1,000 RPM rather than 1,900 RPM, this will result in more stabilized hand-warmers at slower riding speeds.
- RER function is now limited to 25 km / h.
- Fault code strategy changed, in the past a low 55 volt code could also trigger numerous other low or high 12 volt codes. This was confusing for a technician to diagnose the root cause of a problem. The fault code strategy will in most cases just show the root cause fault. This change will also result in fewer "check engine" lights occurring and make troubleshooting far easier.

ALL REV XP E-TEC MODELS.


mdd2010-001-135

What's New:

E -TEC break in strategy

Why:

Both the 800 R and E-TEC engines take a long time to "break in". The use of Nickasil cylinders, chrome rings, and the excellent protection of our XPS semi synthetic oils are the major contributors of this. This is evidenced by the horse power of these engines steadily increasing with time. In some cases as much as 10 hrs are needed before full performance is developed.

Because of this, the "break in" strategy has been changed on the E-Tec engines this year. Instead of a 3 tiered 6 hr "break in" as noted last year in the Tech update book and visible via *B.U.D.S* in minutes of "break in "remaining. The new strategy will be based on fuel flow and RPM / or "load line" based. *B.U.D.S* will now show a percentage of "break in" remaining. In general the new strategy will require 2-3 full tanks of fuel to be consumed before the ECM is out of "break in" mode. The "break in" may be anywhere from 5-11 hrs depending on riding style. It is still a tiered "break in" so less fuel and oil will be used as the hours accumulate.

As in the past this will be nearly seamless to the driver , however if someone drives at a slow steady 5000 - 5500 RPM all the time the "break in" will definitely take longer than 6 hrs.

Our "break in" recommendations have not changed, as always it is good to vary your speed and RPM while driving and short bursts of high RPM are fine, Simply wait till after the unit is fully broken in before long wide open throttle runs are made. **DO Not add extra oil** in the fuel tank on the **E-Tec** models during "break in" ,the electronic oil pump is programmed to deliver the extra oil needed during this period. As mentioned in the owners manuals all other 2 stroke models should have extra oil added in the fuel tank during "break in".

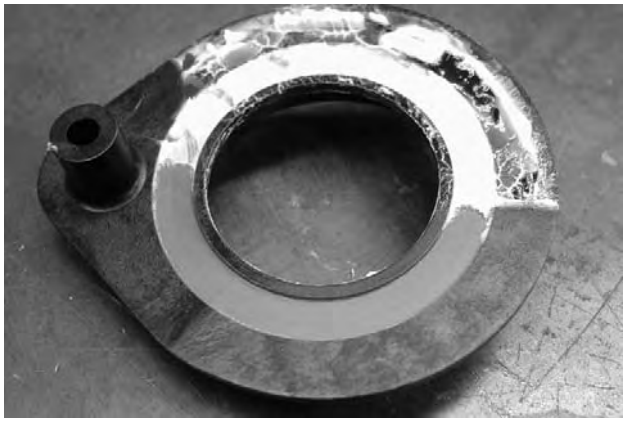
TYPE 593 E-TEC

What's New:

Starter pawl

Why:

A new lubrication slot added for improved lubrication to avoid friction welding between rope sheeve and pawl.


mdd2010-001-183

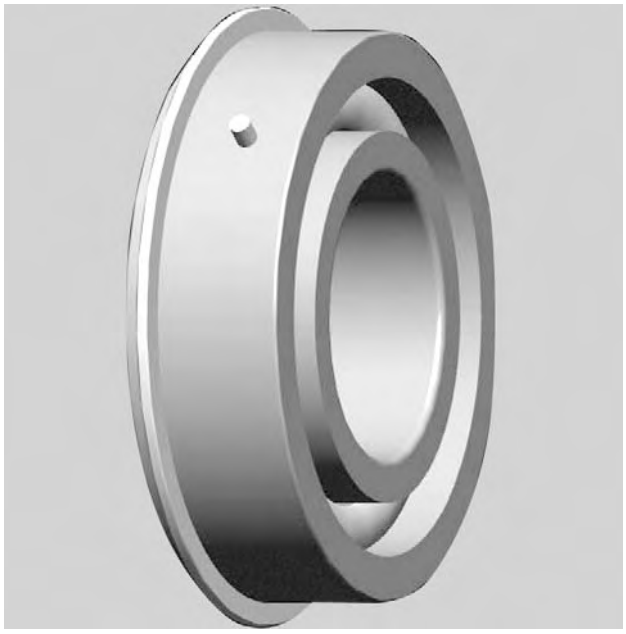
TYPE 797 / 800 R

What's New:

Ball bearing (PTO side)

Why:

A C - 5 fit bearing, meaning "more radial clearance" and improved material to increase durability in severe conditions. Similar to center main bearings introduced in MY 2009.


mdd2010-001-192

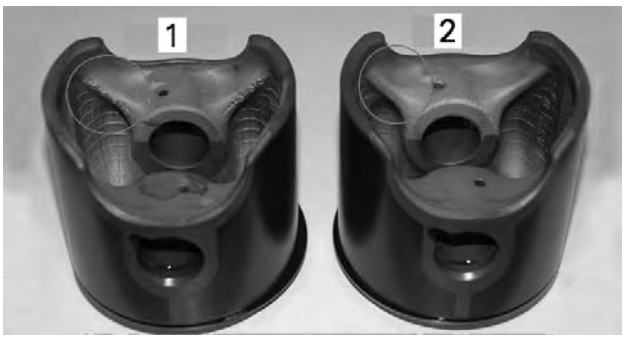
TYPE 797 / 800 R

What's New:

Piston assembly

Why:

Reinforced piston pin bore area to improve durability in severe conditions.
1. 2009
2. 2010



mdd2010-001-193_a

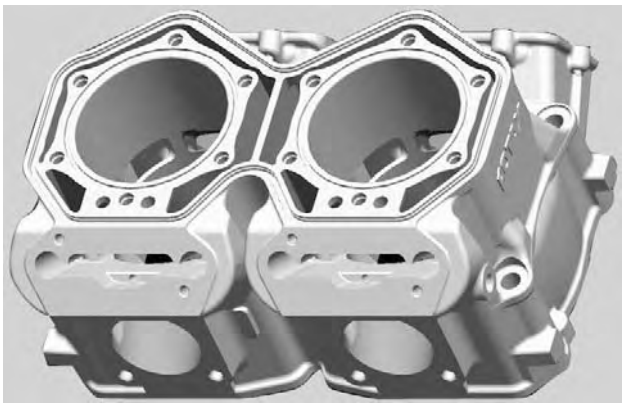
TYPE 797 / 800 R

What's New:

Nicasil plated cylinderblock.

Why:

The cylinder is now tapped for 8 mm threads vs 6 mm to prevent loosening of the exhaust manifold bolts. Exhaust port is also "ventilated" for new design RAVE valve without slot. Part is retrofitable if manifold and bolts are exchanged also.


mdd2010-001-194

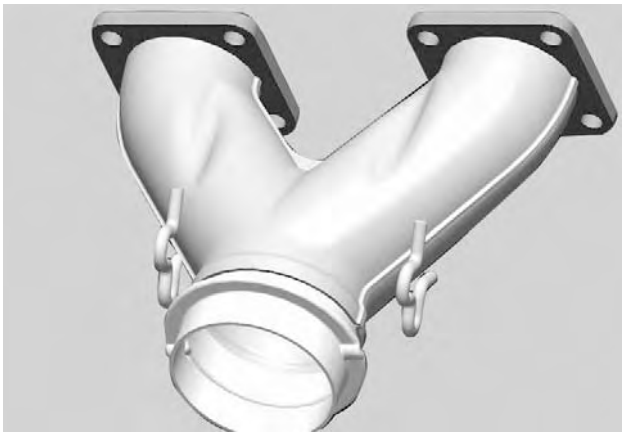
TYPE 797 / 800 R

What's New:

Exhaust manifold

Why:

The exhaust manifold is now secured with 8 mm bolts rather than 6 mm, this change is to ensure the bolts remain tight.


mdd2010-001-195

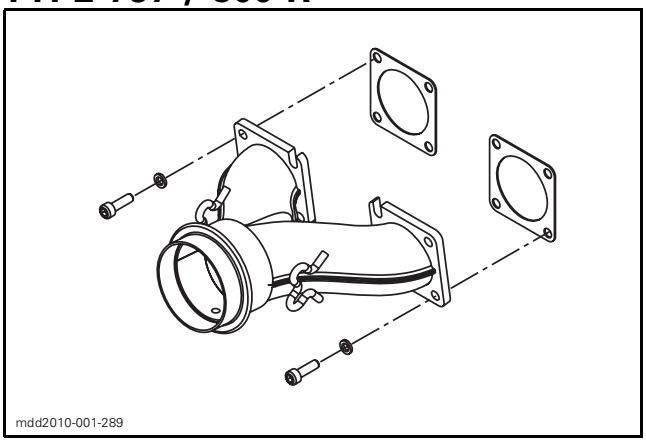
TYPE 797 / 800 R

What's New:

Gasket (exhaust manifold)

Why:

Holes are now 8mm for new manifold.



mdd2010-001-289

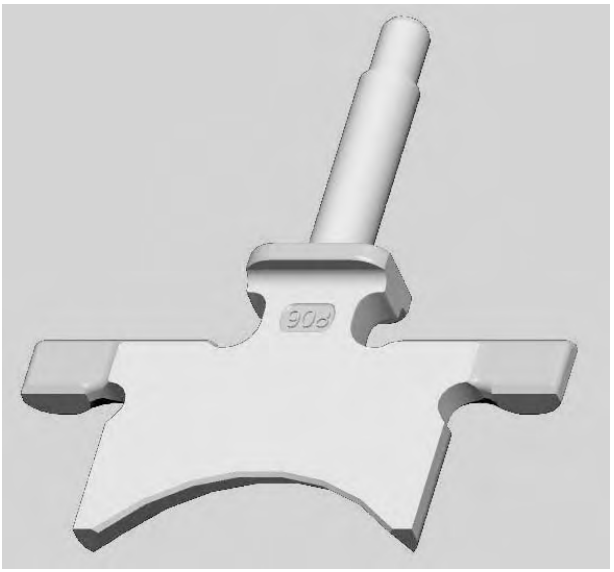
TYPE 797 / 800 R

What's New:

RAVE exhaust valve

Why:

New design without slot for RAVE ventilation (RAVE ventilation bore is in the cylinder)



mdd2010-001-196

TYPE 797 / 800 R

What's New:

Rewind starter assembly.

Why:

Because of new rewind pawl with lubrication slot.

mdd2010-001-197

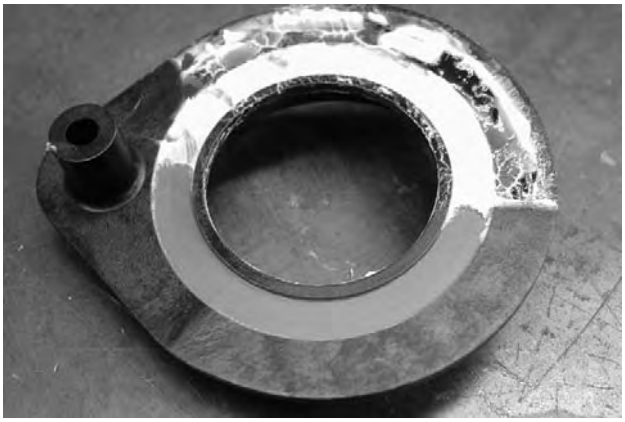
TYPE 797 / 800 R

What's New:

Pawl

Why:

New lubrication slot for improved lubrication to avoid friction welding between rope sheeve and pawl. This change is designed to eliminate rewind sticking do to heat and vibration.



mdd2010-001-183

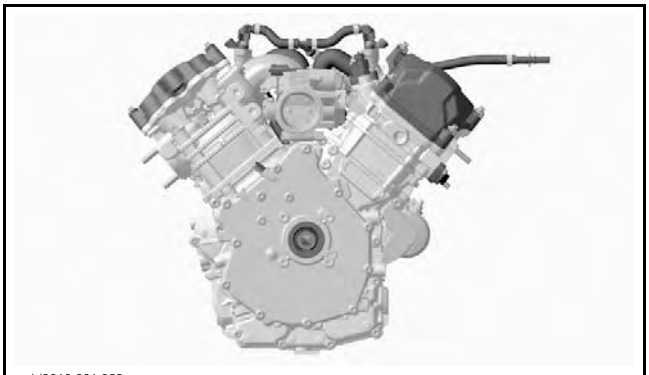
TYPE V – 810

What's New:

Engine longblock (P/N 300 081 001)

Why:

Updated replacement for all V - 810 snowmobile engines Includes new style cam chain guide.



mdd2010-001-283

TYPE V – 810

What's New:

Chain tensioner guide (P/N 420 436 015)

Why:

New design and material to reduce wear, chain tensioner guide is made of steel and coated with rubber. It will not deform do to heat, which reduces timing chain wear and stretch. This guide will only be on the tensioner side the other side is still made of plastic. Part is a direct retrofit for previous guides.

mdd2010-001-198

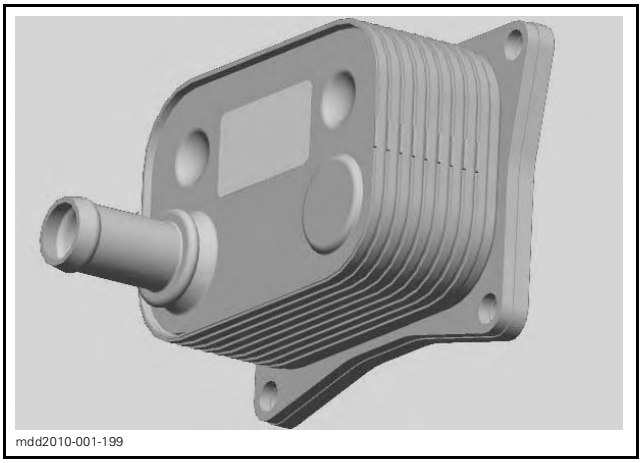
TYPE 1203

What's New:

Oil cooler

Why:

New thicker base plate design to improve durability. This part is a retrofit and will superseed.



mdd2010-001-199

TYPE 1203

What's New:

Intermediate gear (oil pressure pump)

Why:

New design implementation of a radius on teeth, ground to reduce stress and avoid possible fracture.

mdd2010-001-200

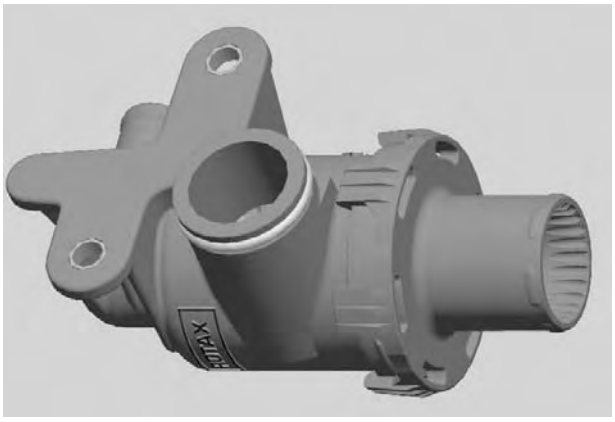
TYPE 1203

What's New:

Thermostat housing assembly.

Why:

New 65 °C thermostat to reduce operating temperatures while running. Part is retrofitable.



mdd2010-001-201

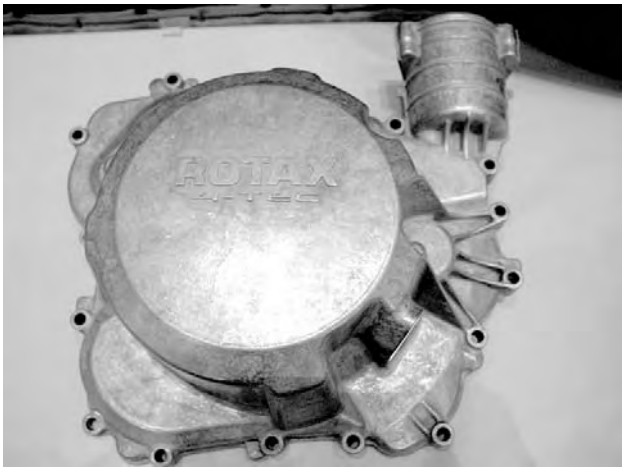
TYPE 1203

What's New:

Magneto cover

Why:

New design, with added ribs, modified rib geometry and improved casting process for improved strength. Part will retrofit.



mdd2010-001-202

Troubleshooting and Tech Tips

In this section you will find the most current tips and solutions concerning situations that occurred during last season, as well as the latest updated procedures information concerning the latest technologies used by BRP. All the troubleshooting procedure should be used in conjunction with the *SHOP MANUAL* and other BRP service publications.

TROUBLESHOOTING AND TECH TIPS INDEX 2003 TO 2009

The following tables describe subjects that were discussed in previous Technical Update books.

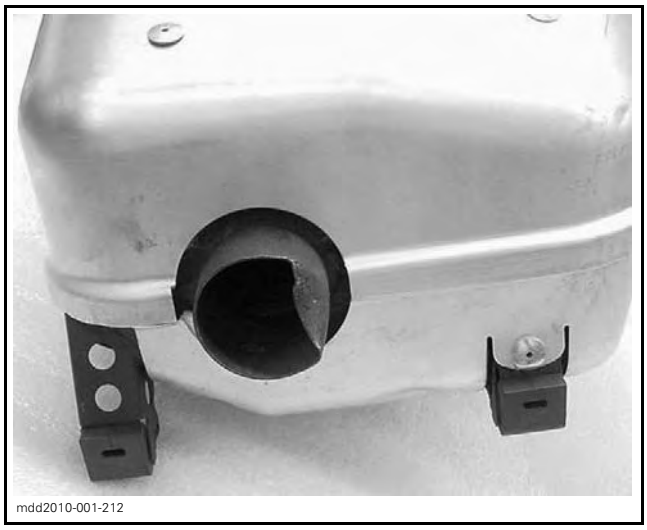
2009 Technical Update Book subjects (discussing Model year 2008)
– REV-XP chain adjuster bolt leaking
– REV-XP chain-case cover bolt breakage
– Renegade and Summit track edges fraying
– REV-XP Premium gauge issues
– REV-XP coolant hose rubbing
– Renegade or Summit pre filter clogging
– REV-XP oil tank and cap leak
– REV-XP coolant bottle leak
– REV-XP Rewind rope fraying
– TNT track noise and vibration
– 800 R crankshaft and shortblock update
– REV-XP tunnel protectors
– Skandic SWT rear suspension spring contacting track
– REV-XP TNT and X package ride compliance in ripple bumps
– 800 R exhaust manifold bolts loosening
– REV-XP wiring harness issues
– REV-XP Brake sponginess
– QRS adjuster not machined
– New alignment specifications for REV-XP chassis
– TNT and MXZ X package rear idler wheel failures
– 600 SDI 7.5 amp Fuse failures
– REV-XP heated grip failures
– Skandic safety recall
– REV-XP MXZ and Summit fuel tank safety recall
– MXZ and Summit throttle cable interference safety recall bulletin
2008 Technical Update Book subjects (discussing Model year 2007)
– RF V-810 super cooler kit.
– V-810 Update information.
– Freezing relays.
– 800 R information.
– Exhaust Screws / Water Intrusion into ECM connector / Oil Pump Adjustment / Software Modification.
– 3D-RAVE troubleshooting tips.
– SUMMIT 800 R TRA VII.
– 793/800 R/995 electric starter failures.
– Studding an REV-XP.
– After mufflers or "cans".
– OTD system countershaft removal.
– QRS cam change procedure.

2007 Technical Update Book subjects (discussing Model year 2006)
– 995 R.A.V.E. cables adjustment.
– Repetitive bog and drop in rpm on MACH Z and Renegade 1000.
– 2006 & 2007 Mach Z and Renegade 1000 performance option.
– Mach Z and Summit 1000 down On and severe top speed loss.
– 2006 RT Series shop manual correction for 995 engine.
– 800 POWER TEK: TPS fault codes and unnecessary TPS replacement.
– 800 HO POWER TEK intermittent running issues and fault codes caused by water intrusion in ECM connector.
– 600 H.O. SDI wiring harness.
– 600 SDI check engine light flashing and rpm loss.
– Summit heavy duty chain and sprocket chart.
– HPV 27 driven pulley cam and bushing wear.
– Summit rear suspension throttle rod bolt's coming loose.
– SC rear suspension center shock failures.
– REV front suspension ball joint inspection.
– RF chassis Tundra excessive front suspension sag.
– RF chassis Tundra heavy duty drive belt.
– 2006 RF chassis RER malfunctioning.
– Zeroing needle on electronic speedometer or tachometer.
– Mini Z headlight failure.
2006 Technical Update Book subjects (discussing Model year 2005) (cont'd)
– Fan cooled RER malfunctioning.
– Random premature belt wear cord pop out on REV chassis vehicles.
– GTX rear passenger heated grips failing.
– Broken TM 40 DPM vent fittings.
– Running boards bending on Summit REV models.
– Summit 550 Fan's over revving and possible engine damage shortly after delivery.
– Fan cooled REV voltage regulator being damaged when installing OEM "skid plate."
– Mach Z and Summit 1000 SDI fuel starvation and E-RAVE cable issues.
– Fan cooled starter motor bendix binding jamming.
– Fan cooled REV spare belt damaged by improper placement.
– Expedition 552 over revving.

2005 Technical Update Book subjects (discussing Model year 2004)
– TRA III balance weights coming loose.
– Fogging gauges.
– SDI fuel line clip.
– Exhaust manifold bolt loose on 593 HO, 593 SDI, and 793 H.O.
– Air filter plugging on rev chassis.
– Hard steering on Summit's.
– Incorrect Renegade HA specs.
– Incorrect Rev "Z" dimension.
– Rev fuel tank vent check valves.
– SDI fuel pickup.
– Tundra bog.
– Skandic WT 552 fuel consumption.
– Skandic 552 WT oil line melting.
– 377 Molykote pistons.
– Magneto for type 377 and 552 fan cooled.
– Rev chassis repairs.
– SDI high oil consumption.
– 593 HO piston rings.
– Warranty parts that are not defective.
2004 Technical Update Book subjects (discussing Model Year 2003)
– Coolant tank leaking or loosing coolant while riding.
– RER button replacement.
– Coolant warning lamp on LC models.
– Fan cooled SC-10 suspension rear arm failures.
– Fogging gauges on LC models.
– SUV slider shoe wear.
– SUV fuel consumption.
– SUV snow infiltration.
– SUV hood deforming.
– Rewind post failures, melting, sticking.
– Spark plug boot difficult to remove.
– 793 engine's PTO seal popping out.
– 593 HO piston ring flaking.
– ECM connector terminal inspection and testing.
2003 Technical Update Book subjects (discussing Model Year 2002)
– Tundra bog, or non responsive back-shifting.
– Rewind starter meltingskipping.
– Low charging current on 360 watt ignition systems.
– Skandic WT speedometer failures.
– Spark plug cap or wire rubbing on hoods.
– High fuel consumption and high rpm while trail riding.
– Tundra rich running condition.
– SC10-III rear shock bolt loosening.

AFTER-MUFFLER OUTLET DAMAGED FROM IMPACTS

Technicians sometimes overlook a basic inspection point when diagnosing a snowmobile that doesn't rev to full rpms or doesn't have full power. By just inspecting the exhaust after-muffler outlet, it can easily be seen if there has been rock, stump or other impact to the exhaust outlet.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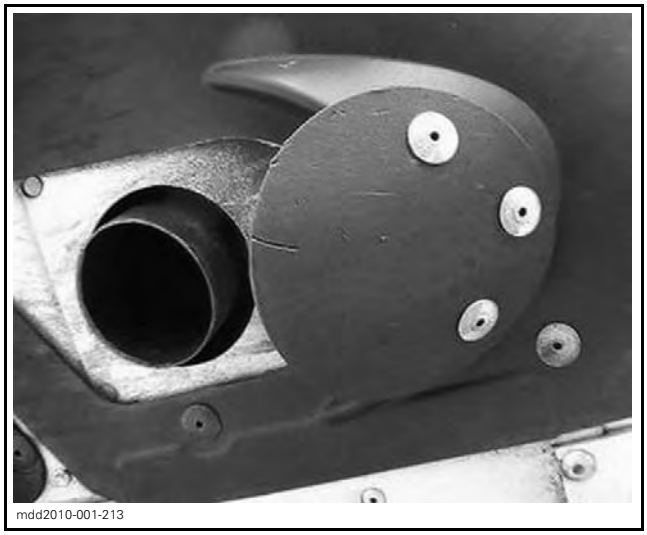
If the after-muffler outlet is bent inward, the exhaust flow can be obstructed which can affect the way the engine breathes and can adversely affect engine performance. If the exhaust after-muffler outlet is bent, normally it can be straightened back to its original shape enough so it does not obstruct exhaust flow. If the damage is so severe to the outlet that the bottom of the after-muffler is bent, it is possible that there has been internal damage done to the after-muffler. In this scenario the after-muffler should be replaced. For race conditions, the Rev-XP 600 RS race sled comes with the addition of a snow deflector that can aid with additional protection for the after-muffler outlet on standard production Ski-Doo snowmobiles. This snow deflector is available through the BRP PAC department. Warranty does not apply.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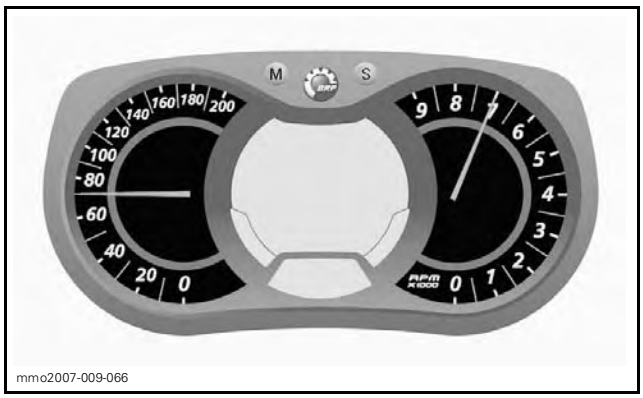
SNOW DEFLECTOR	(P/N 502 006 935) QTY 1
3/16"s Rivets	(P/N 293 150 104) qty 3
3/16"s Flat Washers	(P/N 517 124 300) qty 3

ALTIMETER DISPLAY CHANGE AFTER THE 2008 GAUGE CLUSTER UPDATE



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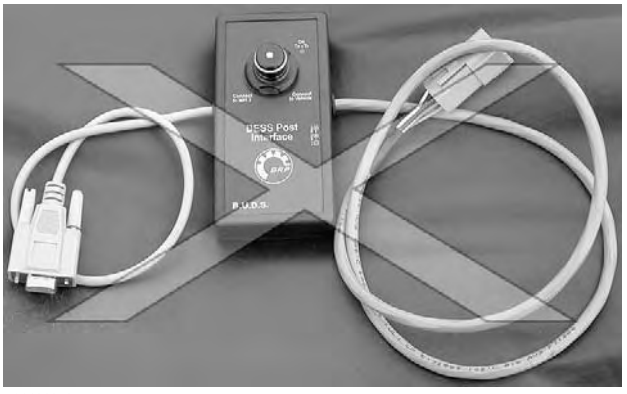
Gordy Is it possible to have the number at the buttom of the picture the quality of that on is very bad.

The 2009 Rev-XP owner's manual on page 47 shows the altitude display on the top or (1) display area on premium gauge clusters. It was that way on the original 2008 gauges, but that has been changed to the middle or (2) display area on 2008's with the premium gauge cluster update from Ski-Doo Warranty Bulletins 2008-19 and 2008-20. All 2009 Rev-X premium gauge clusters have the altitude on the middle or display (2), as will 2010's.

B.U.D.S DATA TRANSFER SPEED AND VERSION USAGE, MPI-1 VS MPI-2

When using B.U.D.S. (BRP Utility and Diagnostic Software) there are ways of losing ECM internal memory if the data transfer is too slow, or if the ECM power up voltage goes too low. Be aware that MPI-1 is the slowest for B.U.D.S. data transfer and has not been tested for newer units on all BRP product lines since B.U.D.S. version 2.3.19 was released. MPI-1 can still be useful for older vehicles even with newer versions of B.U.D.S., but keep in mind the software has never been tested on older units with B.U.D.S. 2.3.20 or newer versions B.U.D.S.

MPI-2 is much faster with B.U.D.S. data transfer than MPI-1. Although, MPI-2 data transfer is much slower if the DESS Post Interface (PN 529036019) is left inline during B.U.D.S. communication on the Kw2000 protocol.



529036019_a

As a general rule, when doing ECM or Gauge Cluster B.U.D.S. communication or B.U.D.S. recalibration updates with MPI-2, only use the MPI-2 Diagnostic Cable (P/N 710 000 851) inline with the MPI-2 when on the Kw2000 protocol. There have been many ECM's and Gauge Clusters damaged when the DESS Post Interface was left inline during data transfer on the Kw2000 protocol.

NOTE: The DESS and 947 DI protocols require the DESS Post Interface to be inline for any communication with MPI-2. While the Kw2000 500K requires that the DESS Interface is not inline with MPI-2. For correct Ski-Doo B.U.D.S. vehicle to computer communication connections refer to Ski-Doo Service Bulletins 2005-7 and 2009-10.

Some vehicles such as the SDI's and 4-Tec's require the DESS Post Interface to be inline for programming keys with MPI-2 on the Kw2000 protocol, for all other communication with B.U.D.S. on these vehicles only use the Diagnostic Cable (P/N 710 000 851) with MPI-2.

If an SDI ECM internal memory has been lost it is possible to recover the memory with older versions of B.U.D.S., 2.3.14 and prior. B.U.D.S. 2.3.14 will be available on Bossweb under *COM CENTER/DOCUMENT/DIAGNOSTIC SOFTWARE/BUDS* until the ECM recapture feature is integrated back into a future version of B.U.D.S.

Sometimes lost internal memory ECM's and can be recaptured with the 2.3.14, but sometimes the ECM has to be sent back to the BRP service department to recapture the internal memory logic. Such was the case on some 2008 and 2009 V-810 ECM's that lost their memory because the battery voltage was too low, or the DESS Post Interface was left inline during B.U.D.S. communication or B.U.D.S. calibration updating. Recapturing the lost module logic is not always successful and the part may have to be replaced. If it is determined that the correct module communication steps were not followed, the part replacement is not covered under warranty.

BELT HEIGHT / DEFLECTION FINAL ADJUSTMENT

For all Ski-Doo snowmobiles there is a Belt Height and or a Deflection specification listed either in the Shop Manual, Predelivery Bulletin or Owners Manual. Sometimes when going to these exact specifications the snowmobile may creep while idling or stall going into RER. Keep in mind the following "Notes" when doing the final belt adjustment.

"Creeping" While Idling

NOTE: The belt height or deflection specification is correct as a preliminary adjustment for most models and belt types. In some cases, when starting the engine, the vehicle could creep, indicating that the belt is too tight.

If the vehicle creeps, lower the belt, install the belt guard and side panel, then start the engine. Repeat until creeping stops.

Reverse Activation Issues

NOTE: The reverse may not activate or may be harder to activate if the belt is positioned too high in the driven pulley. If reverse activation does not work properly, ensure the belt is properly adjusted. Install the belt lower in the driven pulley if needed.

BINDING OF TRA LEVER PINS

During the break-in period on TRA clutches, it is possible for the mating surfaces of the clutch lever pins and the lever bushings to collect a build-up of debris from the various parts on the clutch that are wearing in during the first few hours of use. Often the debris will have a grey gummy feel and look to it and it may prevent the lever from being able to move freely on the pin.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If the levers can't move freely on the pins, the snowmobile may have erratic clutch shifting characteristics.


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It is also possible for the build-up to occur later on as parts wear with more use. If erratic clutch shifting characteristics are experienced or regular clutch maintenance intervals are being performed, the lever pins and bushings should be cleaned of any foreign debris build-up so the levers can move freely on the pins. On assembly, always verify that all of the TRA clutch retainer bolts are torqued to the proper torque specification.

B.U.D.S. "FAULTS" FIELDS DESCRIPTIONS

P Code: The number assigned to a specific fault.

State:

- Inactive: No fault detected.
- Occurred: This is a fault that had become active at one point and then the problem was corrected, an occurred fault will only become inactive if the fault is cleared.
- Active: Real Time Active Fault.

Module: Which module the fault is coming from.

Count: The count will register 1 when a fault first becomes active. If the fault remains active the count will increase by one each time the ECM is reset (ECM powered down and powered up again). If an active fault that has counts becomes an occurred fault, then the occurred fault count will become what the active count was. Inactive faults will never have a count.

Cycle Time: Indicates the number of minutes the engine had run in a driving cycle in which the fault occurred for the first time.

Total Time: Indicates the number of seconds or minutes the engine had run when the first occurrence of the fault appeared depending on what type of ECM is on the unit. E-TEC for example shows total time in seconds, most other units are in minutes.

Description: A brief description of the fault.

Clearing Faults: There are two options on the bottom of the "Faults" page for clearing occurred faults.

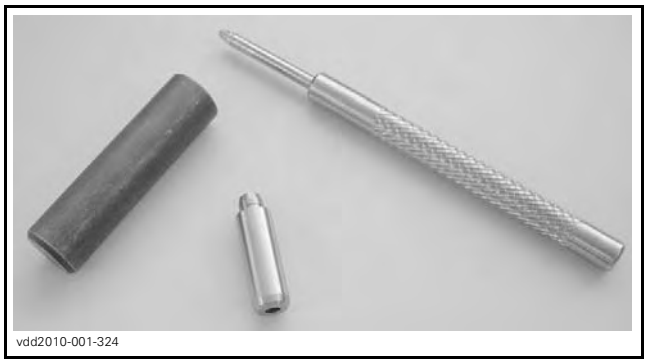
- Clear Occurred Faults: When this option is selected, all occurred faults will be cleared.
- Clear Faults: When this option is selected, only the one selected occurred fault will be cleared.

When a fault is cleared, the count, the engine and the hour will all read N/A.

When a fault is active or occurred, the "More Details" tab will be in bold and can be clicked on for more information for possible causes, service actions and on some units the conditions at the time of the fault.

These possible causes and service actions are to help lead the technician in a direction for diagnosis. Some service actions may say to replace the module, ECM or electrical component. If the service action states to replace a main electrical component, it is always best to try a known good component if the technician or dealer has the correct known good part to try in the unit in question.

NEW VALVE GUIDE SERVICE PARTS FOR V-TWINS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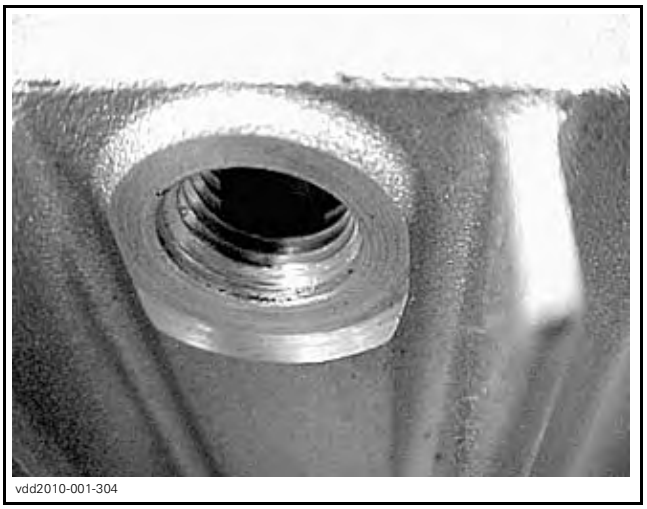
We now have replacement valve guides as service parts for V-810. A worn valve guide can be removed using the special valve guide removal tool, and a new guide installed using the installer. After installing a new guide it must be reamed with a commercially available 5mm reamer to ensure proper valve stem clearance.

To replace valve guides follow these simple steps
– Order new valve guides(P/N 420254374)
– Use valve guide remover (P/N 529035924)
– Order new valve guide installer (P/N 529036140)
– Remove (P/N 529035853)reference from existing shop manuals and write in new part number

REPAIRING STRIPPED DRAIN PLUG THREADS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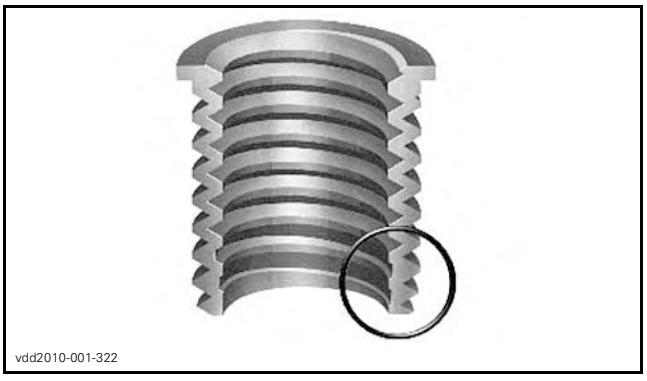
In the unlikely event of the oil drain plug threads being stripped, an easy solution is to install a Time-Sert® kit. instead of replacing the cases.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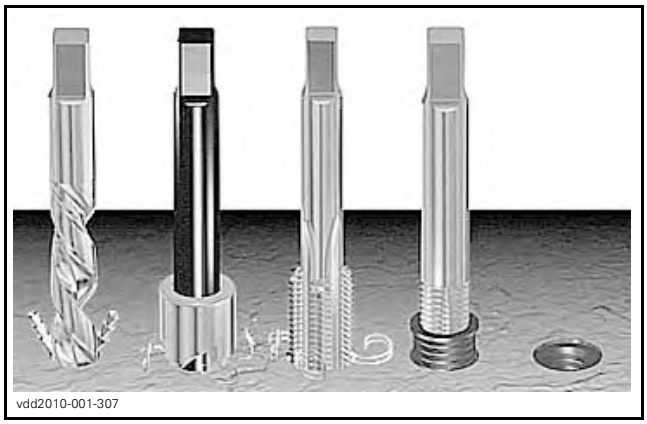
The image here is taken from the web-site of Time-Sert.
– *TIME-SERT* is a solid bushing insert. This guarantees easy installation and allows for full load use of tapped hole, ensuring protection against stress and viberation.
– *TIME-SERT* is thin walled due to synchronized internal external threads. Thin cross sectional area allows for installation in areas of limited space and cleance material.
– *TIME-SERT* Positive Placement. Having a flange on top of the insert will ensure that the insert will have positive placement and cannot wind down into the newly repaired hole.
– *TIME-SERT* is self locking. On installation the bottom internal threads of the insert are cold rolled to expand the mating external threads into the base material locking the insert in place.
– *TIME-SERT* thread repair system is the ultimate way to repair threads in stripped or damaged holes.


vdd2010-001-307

The repair is simple.
– Enlarge hole with specified drill
– Cut flange recess with special tool
– Cut threads with special tap
– Install insert with special tool

NOTE: For more information visit the website at www.timesert.com

REV X DESS POST COMMUNICATION ISSUES.

The past few years we have more reports of DESS "communication issues" at start up. If a double beep is not heard when the vehicle is started, this indicates the lanyards "chip" was not recognized and the engines RPM will be limited to below clutch engagement. Many times a slight "wiggle" or "push" on the DESS cap is all that is needed to get a "double beep" and allow the vehicle to be ridden. Often times, dealers replaced either the lanyard or DESS post in an attempt to improve the situation. After examining the "defective" returned parts engineering has found a simple list of improvements that will improve the electrical conductivity between the cap and the post. This will reduce the number of "single beep" - "lanyard not recognized"- starts dramatically.

Step 1. DESS post cleaning: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Clean oxidation on ring and center post using sand paper 200 or finer and clean with pulley flange cleaner (P/N 413 711 809).

Step 2. Lanyard cleaning:

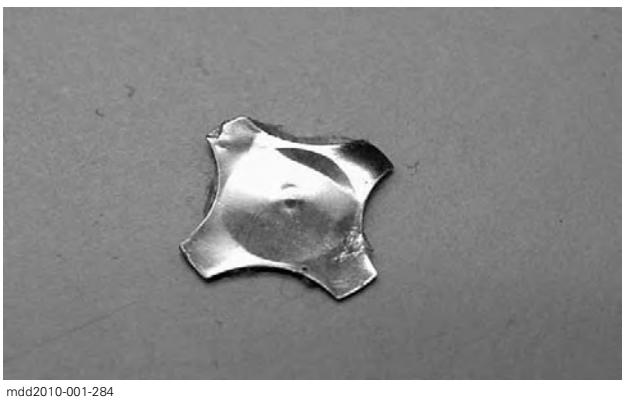

mdd2010-001-217

Thoroughly clean inside of lanyard with a "Q" tip swab soaked in rubbing alcohol. This will help remove oxidation and any other films from the contact surfaces. Do not use any abrasive's, or other solvents as the "domed" contact may come loose.

Proceed to step 3 only if Step 1 and 2 do not improve the intermittent contact issue, or if the contact "dome" is missing or damaged.


mdd2010-001-219

Remove dome and adhesive in the Dess cap. Clean remaining adhesive with solvent like pulley flange cleaner (P/N 413 711 809). Remove oxidation on steel plate inside cap using sand paper 200 or finer and clean with pulley flange cleaner (P/N 413 711 809). Install new dome (P/N 415 129 503) in the center of the cap and apply pressure to ensure appropriate bounding of the dome adhesive.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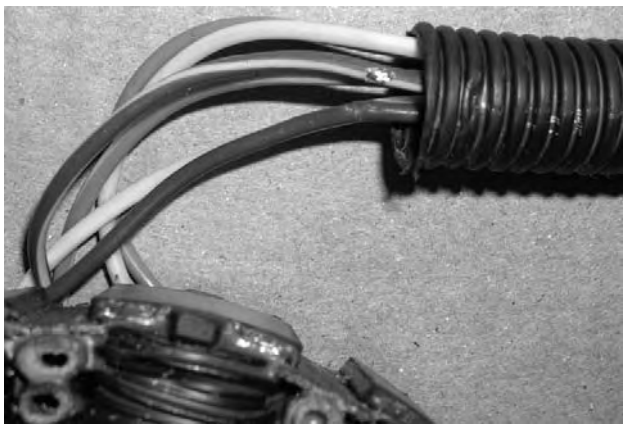
55 VOLT FAULT CODES

There are several causes for the erratic 55 volt readings and fault codes indicated in B.U.D.S.
ISSUE: Pinched stator wires by tie wrap (exposed wires shorting together).
CORRECTIVE ACTION: Remove tie wrap and re-insulate wires.


mdd2010-001-220

ISSUE: Loose capacitor terminal wires (charred terminals).
CORRECTIVE ACTION: Replace capacitor, clean wire terminals.


mdd2010-001-221

ISSUE: Externally shorted stator wire connector (charred marks inside connector).
CORRECTIVE ACTION: Replace connector, do not use Dielectric grease.


mdd2010-001-222

ISSUE: Internally shorted/overloaded stator (dark brown in color and smells hot)

CORRECTIVE ACTION: Replace stator.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NOTE: In MY 2009 numerous high or low voltage fault codes may be generated by a single fault. This makes accurate diagnosis harder for the technician. The number one cause of 55 volt fault codes has been loose capacitor connections. When the low 55 volt code is found it is common to see numerous low 12 volt codes also. As noted in the What's New section of this book MY 2010 fault code strategy has been updated to prioritize the root cause fault code only. Fewer check engine lamps and false fault codes will result.

E-TEC B.U.D.S. MONITORING OF 714 ºC (1318 ºF) EXHAUST TEMPERATURE.

This reading is the "default" of the ECM calibration logic and is displayed if the engine coolant temperature is higher than 30 ºC (86 ºF) and the exhaust gas temperature is below 60 ºC (140 ºF). This is designed to pinpoint either a faulty, engine coolant temp sensor or an exhaust gas temperature sensor. This reading will also be displayed if either sensor is disconnected or improperly installed. **The most common reason is when customers replace the stock exhaust with an aftermarket system and leave the exhaust probe hanging loose**. This practice is to be discouraged because the ECM uses the sensor readings to determine the precise fuel and ignition timing "map" for optimum performance.

When either of these sensors are disconnected or removed, the ECM will "default" the fuel injection system and add an additional 5% more fuel. This increase of fuel will decrease the performance.

E-TEC "WARM UP" DISPLAYED ON GAUGE CLUSTER.

ENGINE

When the engine is first started in cold temps, the ECM is programmed to institute a series of safeguards to protect the engine from damage. "Warm Up" is indicated on the gauge cluster informing the rider these safeguards are in effect. The safeguards include, engine is limited to a maximum of 7000 RPM, RAVE valves are limited to mid position, enriched fuel mixture, increased oil flow, in addition to the oil pump warming the oil for ease of pumping. The ECM determines "warm up" by the readings of both the air intake and engine coolant temperature. It is possible, in extreme cold weather, the ECM to go into "warm up" mode while riding. This is caused by very cold intake air and it is necessary to perform the oil warming safeguard to prevent engine seizure. Understandably, the length of "warm up" time is dependant on engine coolant and air intake temperature.

E TEC DRIVE CLUTCH NOISE

There have been some reports of drive clutch noise when unit is first started in severe cold temperatures. This is normal due to the low engine idle RPM and design tolerances of the drive clutch material. The noise disappears when the clutch warms up.

E-TEC COMPRESSION TEST

It has been determined the proper method for measuring the compression on all E-Tec engines, is to remove one of the RAVE pressure lines and allow the valves to position themselves at the Mid Point Position. While BRP does not specify what the readings should be, it is important the same procedure be followed when testing different units.

E-TEC PINCHED OIL LINE


mdd2010-001-224

During production assembly, a small number of units may have gotten the injection oil line pinched between the engine and frame motor mounts on the right rear. The result was piston seizure, due to lack of oil, within the first 50 miles. To correct, loosen the motor mount bolts, lift up the engine, remove oil line and retighten the motor mount bolt. The oil line will need to be replaced due to the severity of the restriction.

E-TEC RAVE POSITION FAULT CODES

4 situations exist which can cause a RAVE Position Fault Code.

1. Sticking RAVE valve due to excessive oil and carbon buildup
2. Loose or kinked RAVE pressure lines
3. RAVE pressure solenoid
4. RAVE Position sensor

To determine which situation(s) is causing the fault code, perform the following procedure.

1. Connect unit to B.U.D.S., click on "SETTING" folder, note RAVE Mid Position voltage.
2. Remove pressure line from one of the RAVE valves.
3. Remove the RAVE Sensor cover.

4. Using your hand, manually cycle the RAVE Sensor "Rack" to fully closed and fully open positions while observing voltage readings on B.U.D.S. If the rack does not move or operates very slow, this indicates the valves are sticking and need to be cleaned. Refer to E-Tec Service Manual for proper procedure.
5. If valves move freely, fully cycle the rack several times, being careful not to damage the rack or valve bellows. You will notice a very strong detent between the closed and open positions. This is the RAVE Mid Position.
6. Position rack in the Mid Position. Using B.U.D.S., reset Mid Position. (It should reset to approx 2.5 volts).
7. Manually press rack to fully closed position while monitoring B.U.D.S. It should read less than 1.2 volts. If not, replace the RAVE Position Sensor.
8. Manually pull the rack to the fully open position while monitoring B.U.D.S. It should read more than 4.0 volts. If not, replace the RAVE Position Sensor.
9. Install the RAVE pressure line you removed earlier, start engine, watch rack to see if valves move to the fully closed position. If not, inspect the pressure lines for loose clamps, kinked pressure lines and/or defective solenoid. Again, monitor B.U.D.S. to see if the closed position voltage is less than 1.2 volts. Engine vibration may cause an intermittent voltage connection at the sensor which may not be noticed with the engine off. If the voltage, noted on B.U.D.S., varies more than .5 volts, replace the sensor.
10. Increase engine RPM to approx 7000 RPM. Again, monitor the RAVE Sensor rack to see if it moves to the mid position and voltage value on B.U.D.S.
11. Last step give the throttle a short blip to 7500+ RPM and ensure the RAVE's go to full open position.
12. Clear codes using B.U.D.S., install the RAVE Sensor cover.

E-TEC RAVE SENSOR REPLACEMENT


mdd2010-001-225

When replacing the RAVE Sensor or cleaning the valves, the RAVE valve stem must be held with a wrench or socket while removing the nut. Failure to do so, will damage the valves and bellows.

E-TEC INTERMITTENT HIGH RPM ENGINE MISS


mdd2010-001-226

One cause for high RPM engine miss is the spark plug cap is worn causing a loose connection. This condition normally occurs when the unit has higher mileage. Replace the spark plug to correct the issue.

E-TEC SUMMERIZATION

USING THE MULTIFUNCTION GAUGE (Manual)

– Place the vehicle in a well ventilated area.
– Start engine, run until operating temperature is reached.
– Using the "S" button, select ODOMETER mode on the multifunction gauge. If gauge is already set to ODOMETER, you must cycle thru all mode functions, using the "S" button, until ODOMETER is once again displayed.
– Depress the "HI/LOW" beam switch repeatedly.
– While cycling the "HI/LOW" beam switch, press and hold the "S" button.

mmr2009-004-003

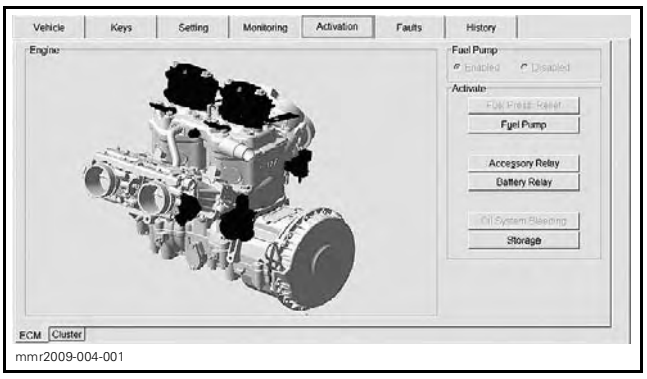
– When the gauge displays "PUSH S", release all buttons.
– Press and hold the "S" button 2–3 seconds until "OIL" is displayed in gauge.

mmr2009-004-004

– Release the "S" button.
– Engine RPM will increase to approx.1600 RPM.
– The ECM will signal the oil pump to "oil flood" the engine.
– Do not depress any buttons at this time.
– Engine will automatically stop when complete. (30-60 sec approx).
– Remove tether cord

USING B.U.D.S. (Auto)

– Place the vehicle in a well ventilated area.
– Connect B.U.D.S. to vehicle (use latest version).
– Start engine, run until operating temperature is reached.
– Select "Read Data".
– Select "Activation" folder.
– Select "ECM" page (lower left of screen)
– Select "Storage" button and follow instructions



mmr2009-004-001

– Engine RPM will increase to approx.1600 RPM.
– The ECM will signal the oil pump to "oil flood" the engine.
– Engine will automatically stop when complete. (30-60 sec approx).
– If engine does not automatically stop after 60 seconds, remove the tether.

E TEC BATTERY CHARGING AND SECONDARY ACC INFO.

On vehicles equipped with electric start, the battery charging relay is not activated until the engine has reached 1900 RPM for a period of 4 seconds or longer. If the engine RPM drops below 1900, the relay will de-activate.

Secondary Accessories (hand & thumb warmers, accessory outlet) will not be activated until the engine has reached 1900 RPM for a period of 2 seconds or longer. If the engine RPM drops below 1900, the secondary accessory circuit will turn off.

E- TEC ECM AND INJECTOR TROUBLSHOOTING

If a fuel injector is suspect of not functioning properly, there are a few quick troubleshooting steps a technician can perform to determine if it is the injector or ECM.

INJECTOR COEFFICIENT

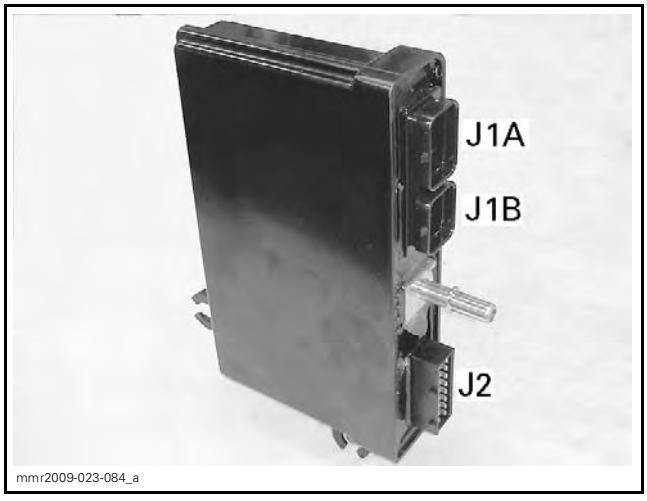
Using B.U.D.S., download into the ECM the correct coefficient files for both the MAG and PTO injectors.

INJECTOR RESISTANCE TEST

Unplug the injector from main wiring harness and using an Ohmmeter, measure the resistance between the two wires of each injector. The measured resistance should be between 2.6 and 3 ohms. Also, measure the resistance from each wire to the injector body. This resistance should be infinite, if not, the voice coil of the injector is shorted. Care must be taken when using an Ohmmeter to obtain correct readings. Remove power from the circuit when measuring resistance. The Ohmmeter leads have a small amount of resistance and must be subtracted from the measured amount. Also, do not touch both leads while measuring resistance, because the ohmmeter will measure resistance in your body.

ELECTRICAL TEST

Power up the unit's electrical system using the T-harness and battery. Plug and unplug each injector while touching them to see if they activate. If you feel them activating, either the ECU or wiring between it and the injector are bad. To determine which is bad next unplug connector J1B from ECU then plug / unplug each injector, if activated the harness is defective. If not the harness it is the ECU injector driver circuit inside the ECU, replace the ECU. The injectors should only activate when the engine is running or with B.U.D.S.



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FREQUENCY TEST

If you have a meter that is equipped to measure frequency, connect the meters positive lead to one side of the injector and the negative lead to ground. With the engine running, monitor the frequency reading on the meter. A quick calculation will confirm if the injector or ECM are operating correctly. Frequency (Hertz) is equal to engine RPM divided by 60.

Example: 3000 RPM / 60 = 50 Hz

E-TEC FUEL CONSUMPTION ISSUES

We received several reports from dealers regarding "less than advertized" fuel mileage. Advertized fuel mileage was based on average trail riding speeds (approx 30mph), not wide open throttle riding. Many things can contribute to higher than normal fuel consumption. Below are a few common items.

ENGINE BREAK-IN PERIOD

During the initial hours of engine operation, the ECM supplies extra fuel and oil to the engine to safeguard against damage. During this period, it is also recommended not to exceed ¾ throttle opening, which also causes higher than normal fuel consumption. After the "Break In" period, fuel consumption will return to normal.

TRACK TENSION

A number of suspect vehicles were investigated this past season by engineering and surprisingly the track being over-tensioned had a significant impact on fuel consumption. As much as a 10 MPG loss has been attributed to over tighten tracks. Refer to Service Manual for proper tension and alignment.

HIGH ENGINE RPM

To protect against engine damage, the ECM is programmed to deliver additional fuel when the RPM exceeds the maximum rating. We were informed last year, a few of the E-Tec models were clutched too light, which resulted in RPM being higher than the maximum rating. All 600 E-Tec engines are rated at 8100 + 100 RPM. This should be checked after the Break-in period has expired.

IMPROPER CLUTCHING

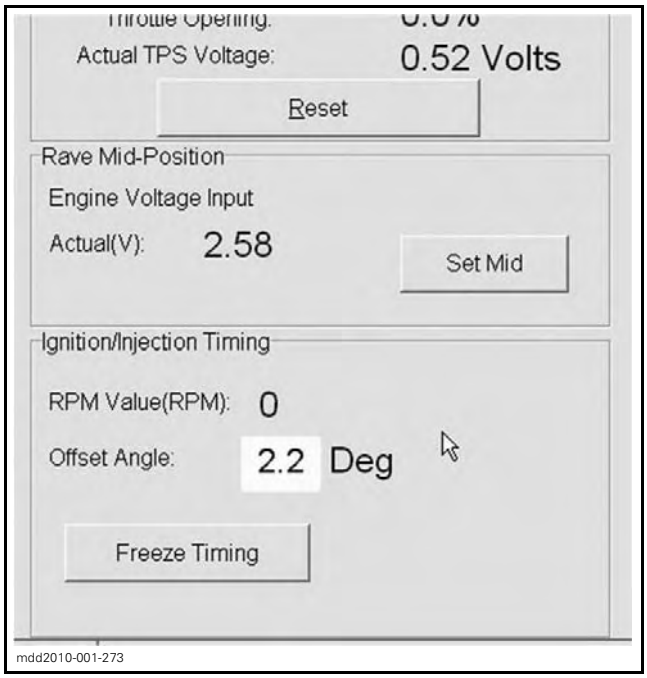
Many customers like to "tweak" the clutching because they feel they can obtain better performance. Any changes in clutching and gearing will result in changes in fuel economy.

HIGH SPEED OPERATION

The biggest reason for high fuel consumption is increased speed. It takes additional HP to increase speed, and simply, it takes fuel to make HP. Again, the advertized fuel consumption numbers are based on average trail riding speeds.

E-TEC KNOCK FAULT CODES

Two of the most common reason for Knock Fault Codes are, poor grade or low octane fuel, and / or advanced ignition timing. It's important to discuss with the customer, to be aware of the quality of fuel that is being used, and to always use the recommended fuel type as stated in the Operators Manual.



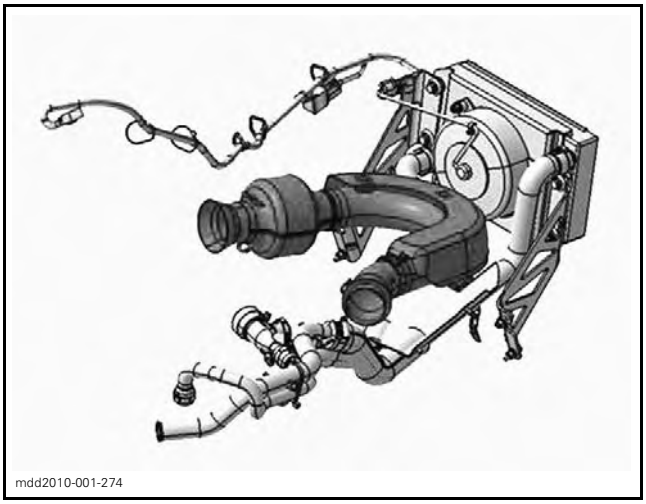
It has been determined, a small quantity of E-Tec units were produced with improper ignition timing offset. Timing offset can be checked and adjusted thru the use of B.U.D.S. To verify the correct offset timing, open the "SETTING" folder with B.U.D.S. If B.U.D.S. indicates 2.0 degrees or more, the offset needs to be re-adjusted. Please refer to Service Manual for adjusting the timing.

TRANSMISSION ISSUES 1200 4- TEC MODELS

Last season a Quality WB2009-9 revision 1 was issued pertaining to the transmission possibly jumping out of gear. Remember a Quality Bulletin is used for repair if the described symptom exists or is noticed.

REV XR 1200 POSSIBLE OVERHEATING

Last season there were a few reports of overheating while riding at very slow speeds or very limited snow conditions. An accessory radiator kit has been developed by engineering and available from our PAC department. This kit includes a radiator, electric cooling fan, and all necessary hardware to complete the installation (P/N 860 200 256).


mdd2010-001-274

This is a customer pay option.

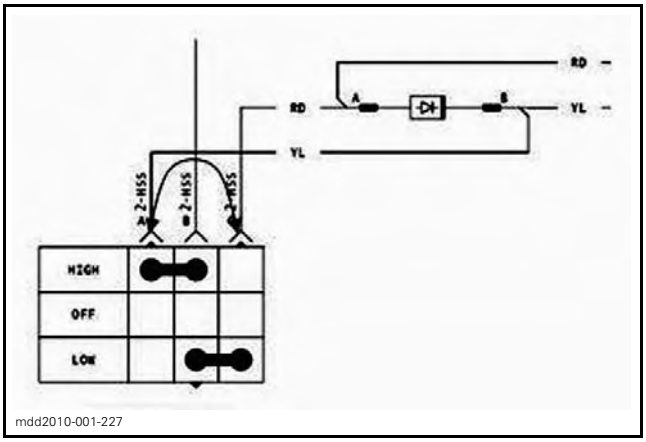
HEATED SEAT SWITCH WIRE TERMINALS REVERSED ON 2009 GTX SE 1200 4-TEC

There have been complaints that the heated seat function on the 2009 GTX SE 1200 is working the opposite of the switch positions. Customers have noticed that when the switch is set in the "low" position, the seat is very warm. Also, when the switch is set to the "high" position, the seat is only slightly warm.

It has been found that the wiring is not connected correctly at the Heated Seat Switch from the factory for the front and rear seats. Also the 2009 wiring diagram is wrong for both the front and rear seats.

If experiencing this issue, change the position of the YL and RD wires at the switch and correct the shop manual wiring diagram.

Normal Warranty Applies



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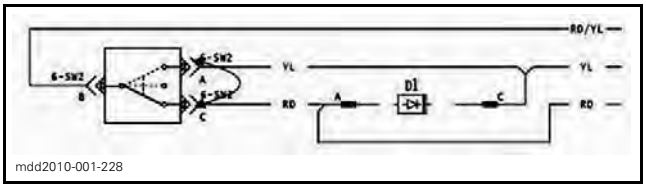
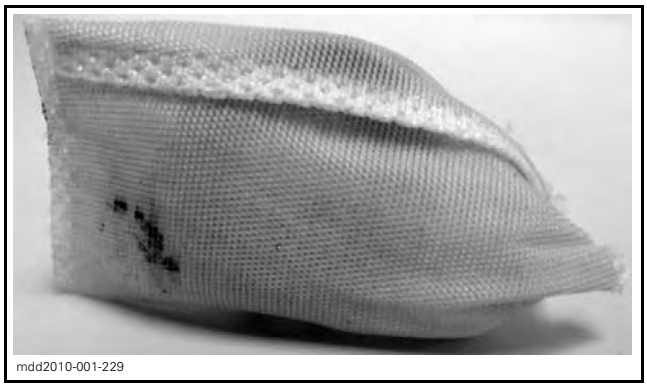
Remember to correct the rear seat switch terminals also.



mdd2010-001-228

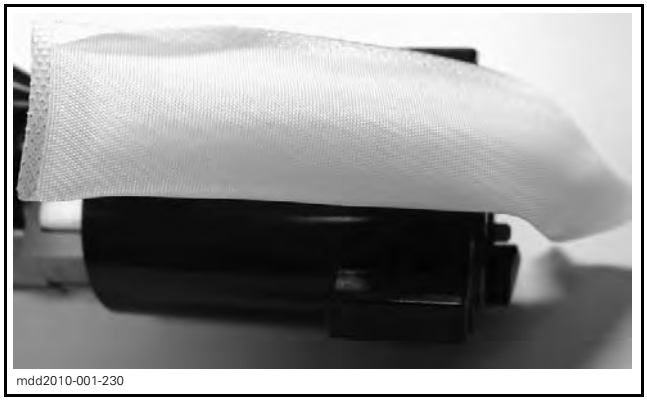
HIGH PRESSURE JET PUMP FILTER OBSTRUCTED WITH DEBRIS REV-XP, XR AND XU

There have been confirmed cases where the type of fuel used has caused debris or gumming to form in filters, hoses and all fuel system components. When certain types of fuel additives or fuel containing ethanol are initially introduced to an area there is a higher probability that debris in the service station fuel tanks may become dislodged and mixed in with the fuel. This mixture may clog the electric fuel pumps filter element. If this is experienced and the vehicle's fuel system is contaminated, then the vehicles entire fuel system needs to be cleaned.


mdd2010-001-229

Here is the old original smaller dirty filter.

The inline final filter and the in-tank pick-up inlet screen filter have been available separately, however the internal high pressure jet pump 60 micron filter was not available until the release of Ski-Doo service bulletin 2009-18. This bulletin has full information on the replacement procedure for this internal high pressure jet pump filter and the part numbers needed to perform the filter replacement procedure. **If the fuel system has been contaminated from poor quality or contaminated fuel, the cleaning and repair of the snowmobiles fuel system and any consequential damage may not be covered under warranty.** The new larger volume filter mentioned on Service Bulletin 2009-18, (P/N 415 129 451), will work on 2008 and newer 600sdi's in Rev-XP & Rev-XU chassis's as well as all 1200 4-TEC's and E-TEC's.


mdd2010-001-230

Remember to install a new fuel pump gasket (P/N 513 033 334) on reassembly.

DON'T OVERLOOK THE BASICS

Often the basics of engine troubleshooting are overlooked. Since the introduction of advanced vehicle communication software, technicians often only rely on the diagnostic software and forget about basic engine troubleshooting. For 2 and 4 stroke engines it must always be known if there is good fuel delivery, good compression, good strong correctly timed ignition (spark), a free flowing intake system, a properly working exhaust system, good intake reeds (2 stroke), correct valve timing (4 stroke), no engine air leaks, et cetera.

If an engine fails to run or will not run properly, never overlook the basics that make an engine run. Pinpoint the problem to one of the three following areas:

- Electrical – ignition components, connections, switches
- Fuel – carburetor, fuel pump, fuel injectors, regulator, fuel tank, hoses and filters
- Mechanical integrity – compression, engine leak test, intake and exhaust

The shop manual is one of the most valuable tools BRP offers to assist in the repair of a snowmobile. Unfortunately, it is sometimes overlooked as being such a valuable reference tool. It is highly recommended to thoroughly read the theory and procedures contained in the sections of the shop manual.

BRP offers a wealth of information on all of its products. BRP product information can be found in publications ranging from model specific shop manuals to the BRPTI Guide to Service Fundamentals and Principles (484800168) to service bulletins to owners manuals to specification booklets to numerous video training presentations and even sales brochures, et cetera. Make sure to utilize all the resources available to BRP dealers, the more that is known and understand about BRP products, the more accomplished and professional the BRP technician skill level will become.

Piston Failure Analysis

An inspection of an engine that has experienced a failure always includes inspecting the piston to help pinpoint what exactly happened that caused the failure. To help identify the type of failure to the piston, the following pages are to give a reference to help identify the cause of the failure to the piston.

See the following pages for a piston failure analysis guide.

Troubleshooting

Piston failure analysis

	
*Top view	Underside view
	
*Exhaust side view	Intake side view

Failure type: Debris

NOTE: * Indicates the area of the piston which shows most damage for this failure

A foreign object enters the combustion chamber and causes damage to the piston. In this case the ring-locating pin broke and made its way to the top of the piston. This did not cause any damage to the underside or the skirt of the piston but the top of the piston is damaged. Most likely the cylinder head will need replacing as well. Other examples would be a circlip that fell out, a broken connecting rod that hit the piston, crankshaft bearing parts or just simply some foreign object that entered through the carburetor.

NOTE: Circlips lose their form when disassembled. There-for, always use new circlips for reassembly. The piston pin circlip must not be damaged during installation –always use the proper service tools as indicated in the shop manual.

	
*Top view	Underside view
	
*Exhaust side view	Intake side view

Failure type: Pre-ignition

NOTE: * Indicates the area of the piston which shows most damage for this failure

Detonation is caused from extremely high combustion temperatures. Continuous light to medium detonation in the combustion chamber can begin to "eat" away the aluminum from the piston in the squish band area on every compression cycle. The outer circumference of the piston crown looks like it has been sandblasted — very dull and pitted. Prolonged detonation of the piston results in pre-ignition. Once pre-ignition occurs, the temperature rise is so rapid the melting point of the piston is reached. With this excessive heat build up, aluminum transfers from the piston rim and then blows by the ring and ring-land. This excessive temperature and blow-by created on the piston is what is referred to as a blow-by hole. As in the above example, the exhaust side is more vulnerable to detonation. This is due to the exhaust side's higher temperature in comparison to the intake side, this piston exhaust side melt point occurred so quickly while the engine was running (seconds) that it did not create any damage to the intake side.

Some of the causes for detonation leading to pre-ignition can be an engine air leak, carburetor jetting too lean (dirty or plugged jets), compression ratio too high, ignition timing advanced too far, spark plug range too hot, bad fuel (water in fuel or too low on octane) and an improperly operating cooling system.

	
*Top view	Underside view
	
Exhaust side view	Intake side view

Failure type: Center detonation

NOTE: * Indicates the area of the piston which shows most damage for this failure.

Center detonation is similar to side detonation, with the exception that this type of detonation, was caused by too hot of a spark plug. The spark plug not able to dissipate the heat because of an improper heat range, the overheated spark plug became the ignition source to pre-ignite the air/fuel mixture. This uncontrolled combustion occurred and the temperature rapidly rose at the crown surface of the piston just underneath spark plug melting it at that point. Often there is little or no damage to the intake or exhaust sides of the piston.

This type of damage is often caused by and incorrect heat range spark plug, or too hot of a spark plug, always verify the appropriate service information for the correct spark plug type. An improperly operating cooling system can also cause center detonation.Low coolant level or an improperly operating cooling system can also cause center detonation. If the coolant level is low it is possible that an air pocket be formed in the cylinder head around the spark plug seat area. This can lead to spark plug overheating do to poor heat transfer from the spark plug to the coolant. Other possible of causes of center detonation are: engine air leaks, carburetor jetting that is to lean (dirty or plugged jets), compression ratio that is too high, ignition timing that is advanced too much and bad fuel (water in the fuel or too low of an octane used).

	
Top view	Underside view
	
Exhaust side view	*Intake side view

Failure type: Water or Snow ingestion

NOTE: * Indicates the area of the piston which shows most damage for this failure.

Heavy scoring marks caused by water or snow ingestion. In an event that the engine ingests either snow or water, the oil film in between the piston and cylinder surface get washed out, which causes unlubricated direct contact of the metal surfaces of the piston and the cylinder. This momentary scraping or scoring seldom causes any permanent or performance robbing damage at first. No significant damage takes place initially because the oil film will resume before the piston and cylinder has a chance to start exchanging material from one another. However, water scoring will have a great influence on the lifespan of the piston. Seizures caused by water or snow ingestion can cause engine failures when they are of constant and repetitive character.

Ingestion can come from water or snow infiltration in the air intake system.

	
Top view	Underside view
	
*Exhaust side view	*Intake side view

Failure type: Lack of Oil

NOTE: * Indicates the area of the piston which shows most damage for this failure.

Seizure marks which in some cases extend into the ring zone are present in the running surface area where normally the wear pattern develops. Slight counter seizure areas have occurred on the opposite side of the skirt. The surface of the seizure areas has no dark discoloration and almost has a pure metallic finish. There has been an acute lack of lubricant between the piston and the cylinder running surface. With this type of seizure due to lack of lubrication, the damage area on the piston always begins at the load bearing points between the piston skirt and the cylinder or the points at which the normal wear pattern would have formed on an undamaged piston. The fact that the surface of the seizure areas almost has a pure metallic finish indicates that the oil film was still present but significantly weakened at the time of the seizure. Depending on the extent of the damage, there may be evidence of a temporary lack of oil or the early stages of damage. If the damage to the piston is more severe, for example extending 360° degrees then it is likely the engine was run for a continued period with a lack of oil. Inspection of a failed piston caused from a lack of lubrication can sometimes be confused with pre-ignition since there is sometimes so much heat transferred from the sides of the unlubricated piston to the combustion chamber, that it is possible for the piston dome to reach its melt point.

Possible causes for damage can be, lack of oil delivery, "running out of oil", air leaking into the oil system, obstructed oil tank venting and obstructed flow of the oil system.

	
Top view	Underside view
	
*Exhaust side view	*Intake side view

Failure type: Four corner seizure

NOTE: * Indicates the area of the piston which shows most damage for this failure.

Four corner seizures can be explained in general as a sudden lack of piston to cylinder clearance. This is often referred to as a cold seizure, both sides of the piston show heavy scoring and seizure marks near each side of the wrist pin hole. The pattern of these four seizure points often appears to be a perfect square. The scoring takes place in this pattern because those areas of the piston casting are the thickest. When the piston is quickly overheated, the thick areas will expand and distort the most. Four corner seizures in liquid cooled engines are almost always a result of the engine creating more heat than the cooling system can exchange away. As seen in the illustrations above, the piston crown seldom sees any damage.

The most common cause for a four corner seizure is an improper warm up of the engine, thus the term cold seizure. Other possible causes can be from the ignition timing advanced too far, the compression ratio too high and an improperly operating cooling system (thermostat issue, improperly bled cooling system, insufficient coolant level or a loose or broken fan belt).

	
Top view	Underside view
	
*Exhaust side view	*Intake side view

Failure type: Normal wear

NOTE: * Indicates the area of the piston which shows most damage for this failure.

The condition of this piston has to be described as good, even though the piston has seen several thousand miles or kilometers of run time. Carbon deposits are light and equally distributed over the piston crown. High-pressure zones just below rings only show natural wear marks. Piston surfaces are showing wear but no scoring or scratching marks. The Molycote layer for the break-in period is still visual in some areas even though the engine has exceeded the break-in period by far. This indicates a correct lubrication adjustment and the small amount of carbon deposits are indicating the use of proper oil.

Proper maintenance and storage procedures are contributing factors of long piston life.

PULLEY ALIGNMENT ON REV-XP MODELS, AFTER THE BREAK-IN PERIOD

To clear up any confusion on the alignment specifications, it should be known that the Y-X dimension will change after the break-in period. For example, if the Y-X dimension is 3 mm, it is normal for the Y-X dimension to end up at 1.5-2 mm after the rubber motor mounts have been through the break-in period. The 2009 and 2010 Rev-X's all have a predetermined added amount of skew (up to approximately 1.4mm) built-in to the specifications. **This means that if a vehicle has been run a few hours and the Y-X dimension is checked it will not be the 3 mm as noted in the tech specifications, Y-X will most likely be in the 1.5- 2mm range.** This is normal and by design. On pages 86 and 87 of the 2009 Ski-Doo update book (P/N 219 600 029), there is an explanation of why perfect alignment was chosen to be at the 2:1 ratio. Along with this explanation it must also be understood that if perfect alignment happens to be at 1.9:1, 2.1:1 or 2:1, all of these ratios are in the range of where most customers ride at average speeds and only minimal differences can be expected in belt wear. For proper alignment procedures see Ski-Doo service bulletin 2009-12. This bulletin also shows specifications for all liquid cooled Rev-X chassis variations and tools required, such as the new alignment bar (P/N 529 036 157).


529036157

If the alignment is found to be far out of specification, further inspection must be performed. Always confirm all fasteners are tight and there are no worn out parts during inspection. Inspect that there are no extra unneeded shims installed under the motor mounts. Also, there have been a few reports of the primary fixed sheave taper inserts not pressed into the correct position. If this has happened, the fixed flange can either sit too close or further away in relationship to the engine, which will ultimately change the "X" dimension and alignment. If this is in question, then a primary clutch off another known good measuring unit (X, Y & Z) should be tried on the unit in question to eliminate the possibility. Inspection of the secondary alignment with the chassis would be the next step with again using a known good unit for measurement reference. If it comes down to fine tuning the alignment, there are shims available. A.4 mm thick shim (P/N 270 000 024)(P/N) and 1.3 mm shim (P/N 2700 00 025). If the alignment can not be corrected with shims, it would be best to contact the BRP service department to determine whether the motor mounts, chaincase or other component should be replaced.

There have been reports of moisture on the sheaves causing the belt to slip, which can lead to a belt failure. It was found in most of these cases, the cause for the moisture entering the pulley area was a missing left side belly pan nylon cap that allows installation of the stabilizer bar.

If this cap is missing, make sure to replace the nylon cap and add silicone sealant to cap and any other visible openings in pulley area.


mdd2010-001-259

QRS DRIVEN ROTOR CLIP TOOL

The QRS roller bolt retaining clip tool as listed in the Rev-X service manuals Rotor Clip A-150, is not available from BRP. Prospect Fasteners offers the Rotor Clip A-150 Installation Tool, their phone number is 800-822-6080 or 847-526-2950. You can also visit their web site at http://www.prospectfastener.com. There are also other sources for this type of tool.

REV XU UPDATES:

mmr2008-042-120

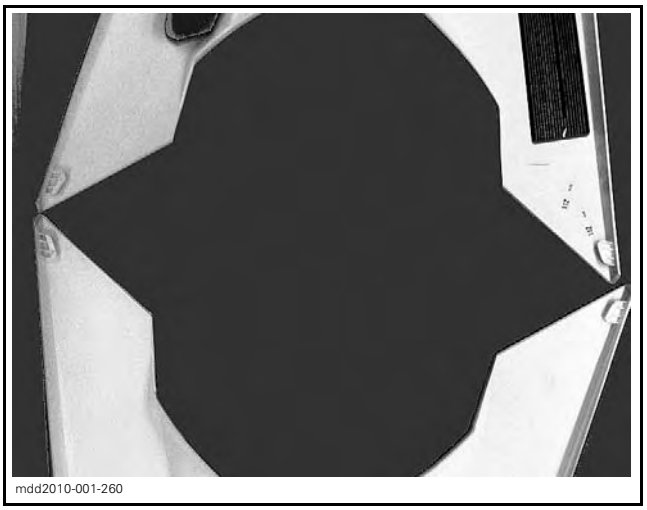
Last season 2 very important Warranty Bulletins were issued on the Rev XU models. A third bulletin has just been issued W/B 2009-11 that addresses shifting issues and body panel replacement. Make sure all affected vehicles are updated to ensure your customers have an enjoyable season ahead.

mdd2010-001-290

REV-XP HOODS NOT FITTING CORRECTLY

There were a few reports on 2009 Rev-XP's that the hood would bulge up when the hood was installed. It was found on these units that the secondary air box chamber was not positioned correctly and the hood would be pushed up, If this occurs, position the air box correctly.

There were also a few reports on 2009 Rev-XP's that the hood would bulge up when the side hood lock tabs were snapped in to secure the hood. It was found that the hoods were wider than they should have been. The specification width of a Rev-XP hood is 19.75 inches (502 mm) and can be as much as 20½ inches (521 mm) for the hood to fit correctly. If the hood measures 20½ inches (521 mm) or more wide, then the hood may not snap in place correctly or bulge up if the tabs are snapped in place.


mdd2010-001-260

If there are issues with the hood staying snapped securely in place or the hood bulges up when the tabs are snapped in, then replace the hood. For 2010 Rev-XP hoods (see the "What's New" section) there has been a change with the addition of rear alignment guides added to the hoods. If a 2010 Rev-XP hood is being installed on a 2008 or 2009 Rev-XP the underside tabs on the console must to be removed to allow room for the new rear alignment guides on the 2010 hoods to be able to slide in.


mdd2010-001-261

The remaining older style Rev-XP hoods without the rear alignment guides will remain in stock until further notice so there will be no modification required to the older style 2008 and 2009 consoles.

Normal Warranty Applies

THERMOSTAT INSTALLED INVERSED IN HOUSING ON REV-X 2 STROKE

A few 2009 2- stroke Rev-X platform snowmobiles had issues with overheating when the unit was ridden for the first time. It was found that the thermostat inside the thermostat housing was installed inversed, or backwards. Very little coolant can flow if the thermostat is installed in the housing incorrectly. If this is experienced, install a new thermostat housing, (P/N 509 000 499).

Normal Warranty Applies

On a correctly installed thermostat, the thermostat starts opening at 99 °F (37 °C) and should be fully open at 131 °F (55 °C).

The picture below shows a thermostat installed the wrong way in the thermostat housing.

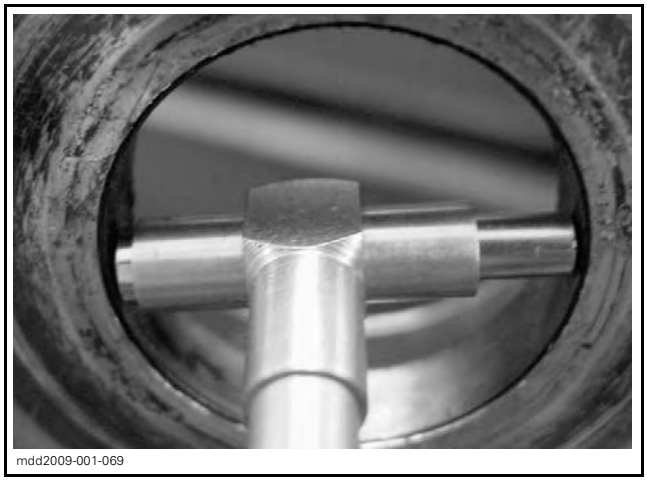

mdd2010-001-262

The picture below shows a thermostat installed the correct way in the thermostat housing.


mdd2010-001-263

TRA-VII SLIDING HALF BUSHING CLEARANCE

All 2009 TRA-VII primary clutch sliding sheaves used "SCP- 500" for the sliding sheave bushing. This material has proven to be very durable and wear resistant. There were a few instances of "sticking" do to tight tolerances of the bushing to the fixed sheave when new. If the unit has issues with high or erratic rpms on upshift, or poor backshifting is experienced, it is possible the bushing clearance is too tight. In most cases the bushing can be honed to a clearance specification of .0025"-.003" for smooth sliding sheave operation. It is best to measure the inner diameter bore of the installed bushing and outer diameter of the fixed sheave shaft so the proper clearance specification can be obtained. If the inner diameter of the bushing can't be honed to this clearance specification, or if the inner diameter of the bushing is oblong in shape, then the bushing should be replaced.


mdd2009-001-069

The SCP 500 replacement bushing for 2008 and newer TRA-VII's is (P/N 417 223 086). Most 2007 TRA-VII's will require the use of the SCP replacement bushing (P/N 417 223 134) because of the larger inner diameter of the sliding sheave bushing seat versus the 2008's and newer.

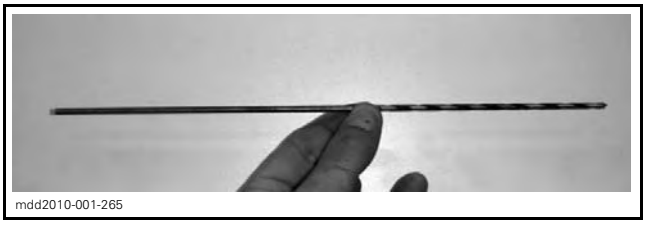
Remember if replacing a bushing to verify the clearance of .0025"-.003" and hone to fit if needed.

Also ensure to verify the spring cup bushing, lever arms, tower slider bushings, and rollers are not worn and moving freely. The most durable rollers for the TRA-VII are (P/N 417 222 947). Finally verify all clutch retaining bolts are torqued to the proper spec.

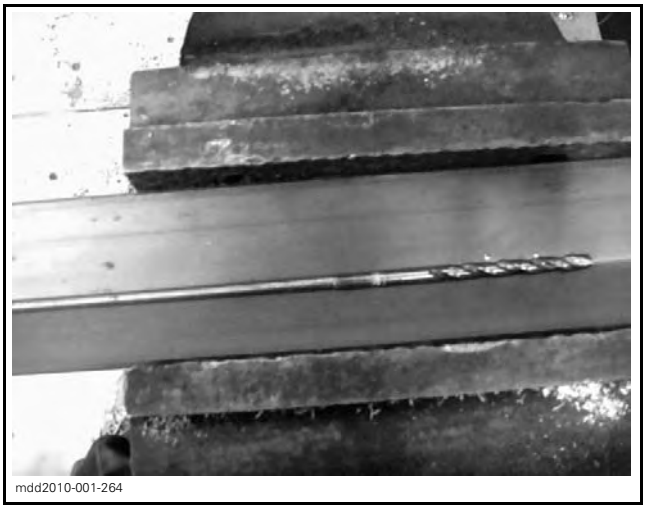
Normal warranty applies.

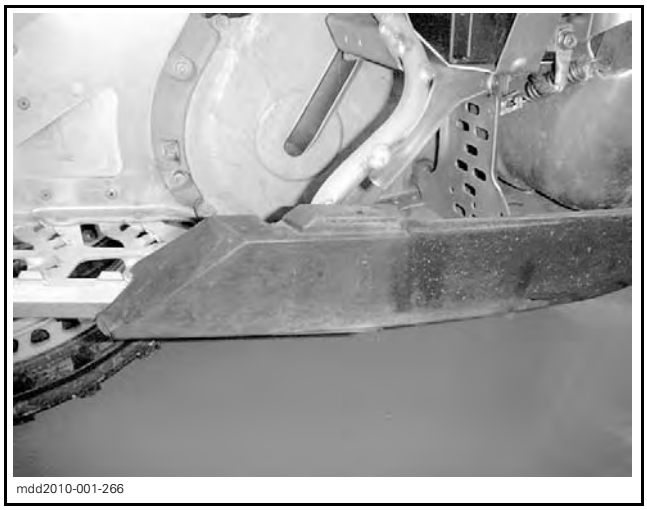
XP CHAIN CASE BROKEN BOLT PROCEDURE

Below is a short pictorial and text on how to remove broken chain case bolts on XP models.

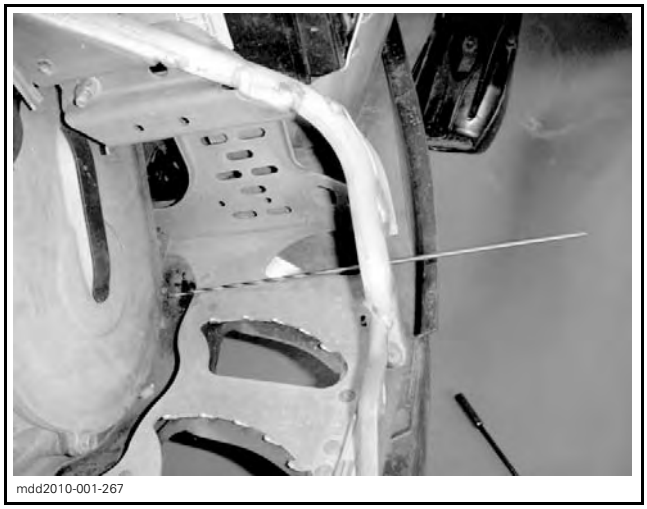

mdd2010-001-265

If you don't have a long drill bit, one can be fabricated easily. Take a standard short bit and get a piece of rod lay, it in piece of angle iron and weld it, while in angle iron so you can weld it straight.

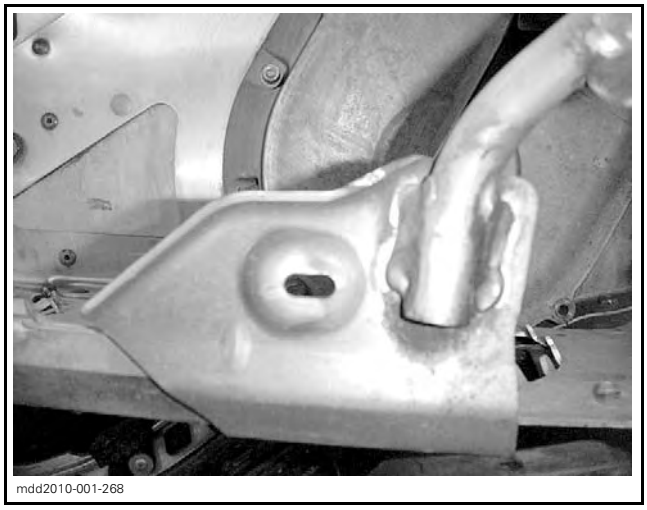

mdd2010-001-264


mdd2010-001-266

To gain access to the lower chain case bolts, remove the inner torx screw and drill out the two rivets and pull down the pan's edge


mdd2010-001-267

Here we can see the drill bit is in place to drill out the lower front bolt.


mdd2010-001-268

To access the rear bolt drill a hole just below the Torx bolt hole for the drill bit to go through.

NOTE: Hole is not drilled yet.


mdd2010-001-269

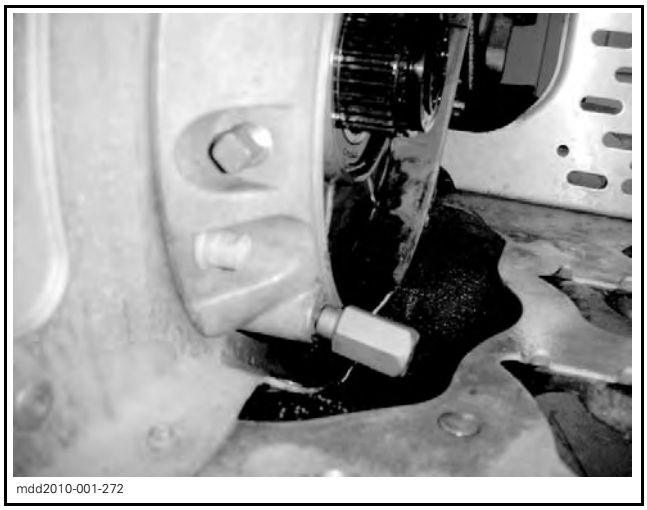
This is what it looks like after we drill the hole for the bit to pass through.


mdd2010-001-270

Now we can carefully drill a starter hole in the broken bolt to insert our "screw extractor".


mdd2010-001-271

This typed of "screw extractor" can be purchased from many auto parts stores or tool deales such as "MAC" or "Snap On"


mdd2010-001-272

Extractor installed to remove broken bolt.

SUMMIT® REAR SUSPENSION "SAG"

Last year we had a numerous reports of ride height on some units. We need to understand that the ride height is factory pre set, and must be readjusted to customer preferences or needs.

The Summit suspension was designed for maximum climbing ability, cornering and comfort. To maximize the suspension performance it is important to adjust it correctly according to the driver weight and the load carried.

First the ride height can only be measured on a flat surface like a garage floor. It should never be adjusted on the trail.

The correct suspension adjustment on a Summit is measured between the spring and the rubber bumper on the rail. It should be 6" to 7" with rider and gear on the vehicle.

Make sure to adjust the rear suspension spring pre-load according to the load carried (Driver with riding gear, jerry can, tunnel bag, ect.). Refer to Service bulletin 2009-7.

Optional springs may be needed if a jerry can is added or tunnel bag etc. For maximum ride height the stopper strap on the front arm must be set to tallest position.

One other note: The HPG shock's gas pressure adds no more than 4% to the "spring rate" of the rear suspension, even if a shock is suspected to be "low" on pressure it will have little to no affect on ride height. On top of that the gas pressure can not be accurately verified with a pressure gauge/needle after it is filled. Do to the extremely low volume or gas capacity of the shock simply inserting a shock pressure needle and gauge will affect the volume enough to give a low or erroneous reading of the actual pressure. .

With all of this in mind it is "normal" for a 2008 and 2009 Summit rear suspension to have a certain amount of drop in preload or ride height when the operator sit's on the unit. This is designed into the front arm and shock length.It was to optimize the "highmarking" capabilities by keeping the front end down and reduce weight transfer while climbing.

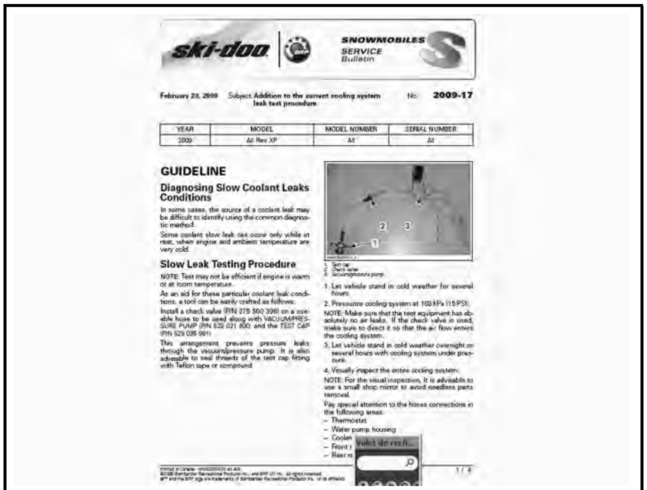
NOTE: For MY 2010 the Summit rear suspension has a new front shock length and rail angle to give a broader range of adjustability. This will allow the optimum "highmarking" set up, or with a simple adjustment the optimum "boondocking" set up. Refer to What's New for more info.

mdd2010-001-285

XP COOLANT LEAKS

Last season we had numerous reports of coolant leaking or weeping from various fittings. Service Bulletin 2009-17 was issued explaining how to pressure test the system and that this phenomena usually happened when the coolant and hoses were cold. If a customer reports coolant leaks on his 2009 XP ensure to replace all clamps shown in the bulletin with the 2 appropriate replacement gear clamps. By replacing all of the potential clamps at once the risk of repetitive issues is eliminated.

Normal warranty applies.



ski-doo SNOWMOBILES SERVICE Bulletin

February 20, 2009 Subject: Addition to the current cooling system leak test procedure No. 2009-17

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2009	All Rev XP	All	All

GUIDELINE

Diagnosing Slow Coolant Leaks Conditions

In some cases, the source of a coolant leak may be difficult to identify using the common diagnostic method.

Some coolant slow leak can occur only while at rest, when engine and ambient temperature are very cold.

Slow Leak Testing Procedure

NOTE: Test may not be efficient if engine is warm or at room temperature.

As an aid for these particular coolant leak conditions, a tool can be easily crafted as follows:

Install a check valve (P/N 275 500 398) on a suitable hose to be used along with VACUUM/PRESSURE PUMP (P/N 529 021 800) and the TEST CAP (P/N 529 035 991).

This arrangement prevents pressure leaks through the vacuum/pressure pump. It is also advisable to seal threads of the test cap fitting with Teflon tape or compound.

1. Test cap
2. Check valve
3. Vacuum/pressure pump

1. Let vehicle stand in cold weather for several hours.
2. Pressurize cooling system at 103 kPa (15 PSI).

NOTE: Make sure that the test equipment has absolutely no air leaks. If the check valve is used, make sure to direct it so that the air flow enters the cooling system.

3. Let vehicle stand in cold weather overnight or several hours with cooling system under pressure.
4. Visually inspect the entire cooling system.

NOTE: For the visual inspection, it is advisable to use a small shop mirror to avoid needless parts removal.

Pay special attention to the hoses connections in the following areas:
- Thermostat
- Water pump housing
- Coolan[illegible]
- Front [illegible]
- Rear [illegible]

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mdd2010-001-291

2009 REV-XP 800R P-1326 CRITICAL DETONATION KNOCK FAULT

Last season there were reported issues of 2009 Rev-XP 800R Power-Teks with the "check engine" light displaying on the gauge and a limp-home mode rev limit of 5000 rpm. Simply shutting off the unit would not clear the fault and the sled would be locked into the limp-home mode. The fault could be cleared by the dealer using B.UD.'s, however if critical detonation was detected again the P-1326 fault code would lock in again. In 2008 if knock was detected the check engine lamp would be displayed and a fault set, however by simply shutting off the engine the check engine lamp would be turned off and the code go to an occurred fault. To repair the glitch in the 2009 800R ECM's, Warranty Bulletin 2009-10 was issued to install an updated ECM software calibration patch to make the P-1326 fault go to an occurred fault when the engine is turned off. This calibration update does not change the ECM knock signal parameters for detecting critical detonation, it is only to allow the limp-home mode to be reset when the unit is shut off and then restarted instead of having to use B.U.D.S. The calibration update also includes improvements to the RAVE position modes if an overheat condition occurs.

ski-doo QUALITY SNOWMOBILES WARRANTY Bulletin

NOTE: Repair only if described symptoms exist or are noticed.

Campaign no.: 2009-0011

February 13, 2009 Subject: 800R Engine Detonation Level Detected Too High No. 2009-10

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2009	MX Z ▶	BB9A / BB9E / BB9C / BB9E / BD9A / BD9B / BD9C / BD9D / BS9A / BS9B / BS9C / BS9D / BS9E / BU9A / BU9B / BU9C / BU9D	All
	SUMMIT ▶	CS9A / CN9A / CS9B / CN9C / CN9D / CG9A / CG9B / CG9C / CG9D / CG9E / CH9A / CH9B / CH9C / CH9D / CJ9A / CT9B / CJ9B / CJ9C	

PROBLEM

Some units may experience a permanent limp home situation when code P-1326 "Engine detonation level detected too high" is activated.

SOLUTION

Upload new calibration.

This calibration will still protect the engine from detonation and if needed it will limit the engine to limp home.

This calibration allows to reset the limp-home by simply shutting unit off and restart-it, instead of having to use B.U.D.S.

PROCEDURE

Always use the latest B.U.D.S. version on your shop computer. At time of printing, the latest B.U.D.S. version is P23.2.21. It is available from the following web site: http://www.bosweb.brp.com.

WWW.BOSWEB.BRP.COM

To download ECM file proceed as follows:

1. On the Internet, go to the BRP web site: http://www.bosweb.brp.com.
2. Under ComCenter drop down list, select: – DOCUMENT
3. On the menu, select: – Document Type: DIAGNOSTIC SOFTWARE – Category: B.U.D.S.
4. Click on arrow and wait for results.
5. Select and download the ECM calibration update file: - 417 129 460 FC

DESCRIPTION	FILE NAME
800R PTEK REVXP MY09 Software and Calibration update knock & limphome	415 129 460 FC

NOTE: Remember where you save the file, because you will browse for it. If your internet connection is on another PC, you will want to download the file to CD ROM or other method of transfer, to update your shop computer because later you will have to browse for it.

Open B.U.D.S. on shop computer and read saved file

1. With the new ECM calibration file and the latest B.U.D.S version installed in your shop computer, start B.U.D.S.
2. Click on the "MPP" menu (upper left hand side of the B.U.D.S. screen) and select "Choose protocol".

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mdd2010-001-292

If the P-1326 critical detonation level detected fault code is being generated and is clearing correctly, there should be a concern as to why the fault is going active in the first place? There can be many causes for the P-1326 code happening. First of all it has to be known that the snowmobile is completely stock. If the head has been milled, or the engine ported, or a "can" added, the ECM is not calibrated for those modifications and detonation may occur. The knock signal will be too high and the ECM will try to "protect" the engine from failure. If the unit is completely stock, there are other things that should be verified such as ignition timing, spark plug heat range, dirty carbs, engine air leak, ,airbox vented properly, etc.

Replacement part ECM's have been updated to the new software number S01144A08.

HIGH TEMPERATURE GAUGE READING ON V-810 UNITS

There have been some reports that after installing the optional ECM software calibration on 2008 or 2009 V-810 temperature gauge equipped units, that the temperature gauge needle goes all the way up into the red zone, giving a false indication that the unit is overheating. To correct the temperature gauge reading, add a 10 ohm 3 watt resistor inline on the temperature gauge signal wire (violet color wire) to make the gauge read correctly. Resistors are available through many electrical parts suppliers such as, www.RadioShack.com.

POSSIBLE ISSUES RELATED TO USING POOR QUALITY FUEL IN SKI-DOO'S

Setting out for a day of riding and having poor snowmobile performance or even worse, possible engine damage, is not worth the hassle and aggravation of having a breakdown and then having to repair the snowmobile from the damage done from running bad fuel. Running good quality, clean fuel of the correct octane in a Ski-Doo is of the upmost importance. On average, the shelf life of gasoline is only 60 to 75 days. Beyond that, it will deteriorate and cause the fuel to have a reduced or lower octane (anti-knock) property. Fuel that had been stored in a vehicle for an extended period of time, during the off-season for example, can become contaminated from water infiltration which could eventually lead to phase separation. As a result, when the vehicle is put back in service, detonation may occur. Also, fuel system components can become gummed, clogged or even corroded from contaminated fuel. If a vehicle component failure is found to be related to the poor quality of fuel used, warranty should not apply. It is best that customers understand the importance of using good quality, clean fuel of the correct octane and the related consequences if the fuel in the snowmobile is incorrect or has deteriorated.

It is a common misconception that high octane gasoline generates more power than regular gasoline, in fact, that is not the case. Actually fuel's octane rating refers to the ability of the fuel to remain stable under conditions of intense heat and pressure, like those encountered during the combustion process inside a running engine. If the octane of the fuel is not sufficient to withstand the normal temperature and pressure inside the combustion chamber during combustion, the entire air / fuel mixture will not burn progressively. Only high performance, high compression engines can actually make use of the additional stability offered by premium fuel, 91 octane or higher. Using premium fuel in an engine designed to run on regular fuel, 87 or 89 octane, is normally just a waste of money (however, if the fuel age, quality or octane in the area is in question always use the higher octane fuel that is available). Using premium fuel in a regular fuel engine will not improve the engine's performance, nor will it improve fuel efficiency. It can also lead to excessive combustion chamber and valve carbon deposits. For units that require premium fuel, it is not advisable to use lower octane fuel to save money, as poor performance or possible engine damage may result from pre-ignition or detonation.

E-10, or unleaded gasoline with 10% ethanol and E-10 premium unleaded gasoline with 10 % ethanol have been around for many years. All Ski-Doo (OEM) snowmobiles built since the inception of E-10 gasoline were designed to run with it, just as they were designed to run on gasoline with no ethanol content. This means that as long as either gasoline is used in a non-deteriorated or a non-contaminated state it will cause no harm to the fuel system components or engine system components as long as the correct octane fuel is used.

NOTE: The use of fuel stabilizers such as Isopropyl will change the ethanol (or alcohol) content percentage in the gasoline. If the gasoline already contains 10% ethanol, the addition of a fuel conditioner may take the fuel beyond the maximum recommended ethanol content that is recommended for the snowmobile. Simple inexpensive fuel test kits are available through many suppliers to verify the alcohol content of the fuel. Refer to the correct vehicle's operator's guide for the maximum recommended fuel ethanol content and fuel octane rating for the snowmobile in which the fuel is to be used in.

NOTE: E-10 should not be confused with **E-85 which contains 85% ethanol. If E-85 is used it will cause engine starting issues and serious performance issues.**

There are a few definite **advantages** to using E-10 fuel such as:

– E-10 is produced from crops which are renewable resources.
– E-10 is an oxygenate, so it can reduce NOX emissions.

The **disadvantages** to using E-10 fuel are:

– E-10 takes a higher fuel to air ratio to make the same power as an engine that is running gasoline with no ethanol content, so more fuel will be consumed to generate equal power.
– Pure ethanol has a higher volatility, which means it changes from a liquid to a gas sooner than gasoline, that can lead to higher possibilities for vapor locking issues with E-10.
– Ethanol is a better solvent, so dirt and gum deposits that gasoline with no ethanol content did not flush out in gasoline storage tanks and your fuel system can be flushed out by the ethanol. This can create blocked filters, debris in carburetors, debris in injectors and generally obstructed fuel systems from the flushed debris.
– When ethanol is added to gasoline the fuel becomes more electrically conductive, so corrosion of metal fuel system components is more likely with E-10 than with gasoline with no ethanol content.
– Ethanol is hygroscopic, which means ethanol or E-10 fuel absorbs moisture more than gasoline with no ethanol will absorb, this can lead to storage problems when the water combines with the ethanol and seperates out from the gasoline. This is called "phase separation" as the resulting fuel then seperates into distinct layers, an ethanol/water mix at the bottom and gasoline on the top. Since the fuel pick-up draws from the bottom of the fuel tank, the engine is forced to try and run on the ethanol/water mix. If the engine is forced to run on this ethanol / water mix it can make the engine run very poor or do serious engine damage, this is why proper fuel stabilization is very important.

Fresh fuel is clean, bright and clear. Dark or cloudy fuel that doesn't pass light is most likely stale or deteriorated. If the fuel quality is in question, use a clean clear container to collect a fuel sample from the bottom of the fuel tank that as been at rest for awhile. Let the fuel sample sit at rest for a period of at least one hour and then see how the fuel looks. If the fuel is not clean, bright and clear the entire fuel system has most likely been contaminated by the deteriorated fuel. The entire fuel system then needs to be cleaned of the old bad fuel and the filter or filters need to be replaced. On carbureted units, the carburetors need to be completely disassembled and all components either cleaned or replaced if too obstructed. On fuel injected units, correct injector operation can be verified with flow tests such as cylinder contribution tests, balance tests, volume tests and leakage tests to verify they still work properly and if not, replaced. Hoses, grommets, fittings, tubing, the fuel regulator, the fuel tank itself or anything that had been exposed to the bad fuel needs to be inspected for any signs of disintegration and replaced if necessary. The repair costs on a contaminated fuel system can be extensive and easily prevented if good fuel had been used or if the fuel system had been properly stabilized when it had been put away for storage.

Snowmobiles are normally only used seasonally and are sometimes not run for long periods of time. Even during the winter when the snowmobile is used, it is sometimes parked for a month or more before it is used the next time. Stabilization of the fuel must not be overlooked when the snowmobile is not going to be used for long periods of time. BRP's recommended fuel stabilizer (P/N 413408600) for Ski-Doo's should always be used in the recommended dosages listed on the container. For storage, if possible, try to use fuel that does not contain ethanol because there is less chance for moisture to get absorbed in gasoline with no ethanol content, versus E-10. When adding the stabilizer to the fuel, always make sure the unit is run for a time period long enough to ensure the stabilizer has been through the entire fuel system of the snowmobile.

V-810 TRA LV CLUTCH SLIDER SHOES AND ROLLERS FAILING

There have been a few reports of the clutch rollers wearing out prematurely in the TRA IV's used in V-810's. It was found on these few units that there was excessive clearance between the standard tower slider bushing shoes and the towers, this was allowing excessive vibration within the clutch and then accelerated wear on the slider shoes and the rollers. If this issue is experienced then install the new .10mm thicker tower slider shoe that is now available, (P/N 417 223 271), always replace all six of the slider shoes at the same time so they are replaced as a set. Make sure to inspect the sliding sheave towers and ensure there is no excessive wear. If the slider shoe O-rings, (P/N 732 401 030) (1 package includes 6 O-rings) are damaged or worn, replace them. Also replace the standard Duralon material rollers and install the SCP material rollers, (P/N 417 222 947) (1 package includes 3 rollers). As long as the clutch is apart, a full inspection should be done to ensure all internal parts are within service limits. Upon reassembly always confirm all of the retaining bolts and securing hardware are torqued to the proper recommended specifications.

NOTE: A spring with a higher start rate may be required.{approx 30 lbs}.

Normal Warranty Applies.

Special Tools

In this section you will find the most current special tools to service efficiently service BRP vehicles. All mandatory tools will be shipped automatically.

ski-doo | BRP

SNOWMOBILES
SERVICE
Bulletin

Date : June 13 2008 Subject : Service Tools No

Year	Model
All	All

BRP is proud to introduce its latest Service Tools Bulletin. These special tools were designed to help you efficiently service BRP vehicles.
Please always make sure to use special tools along with the appropriate Shop Manual(s) and respect all safety measures.

Mandatory Tools: These tools are absolutely needed to perform certain service procedures. They will be automatically shipped to dealerships. They do not need to be ordered separately.

Recommended Tools: These tools will facilitate the Technicians work. They will not be automatically shipped to dealerships. They need to be ordered separately.

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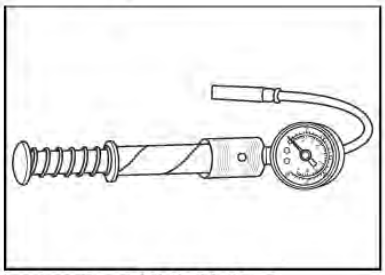
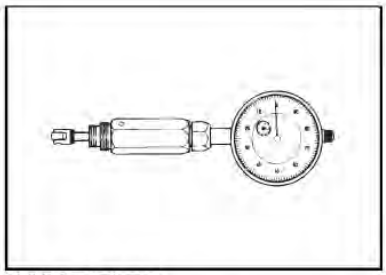
Engine

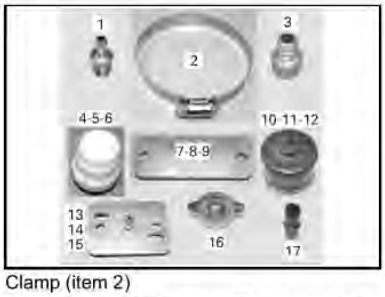


Leakage Tool MIKUNI BN Pump
P/N 295 000 114 Recommended
All carbureted engines
To leak test carburetor pop-off pressure.

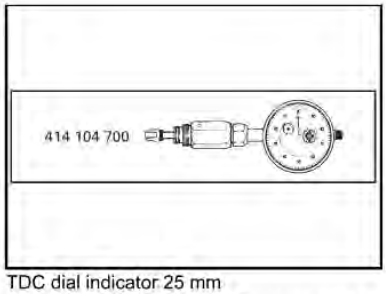


TDC Dial Indicator
P/N 295 000 143 Recommended
2-stroke engines except DI

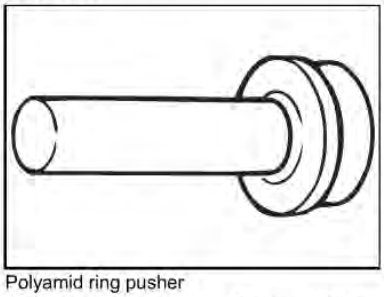
Fitting (item 1)
P/N 408 201 100 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



Clamp (item 2)
P/N 408 803 500 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

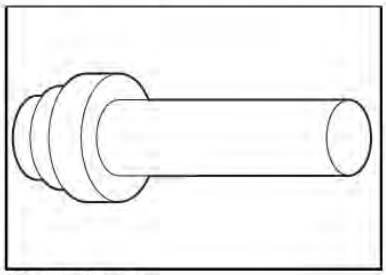


TDC dial indicator 25 mm
P/N 414 104 700 Recommended
For ignition timing static measurement

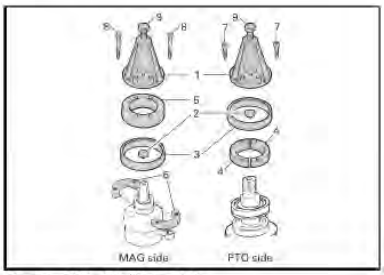


Polyamid ring pusher
P/N 420 267 930 Recommended
247 engine

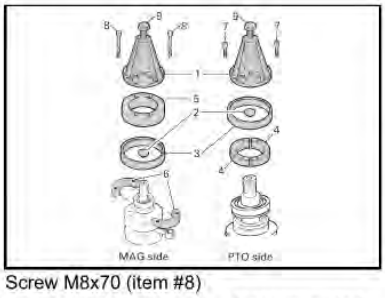
HALF RING PULLER MAG
P/N 420 276 025 Recommended
717 engine
To remove crankshaft bearings.



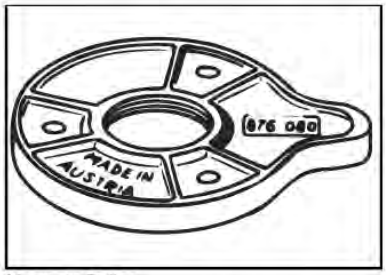
MAG seal pusher
P/N 420 277 875 Recommended
277f



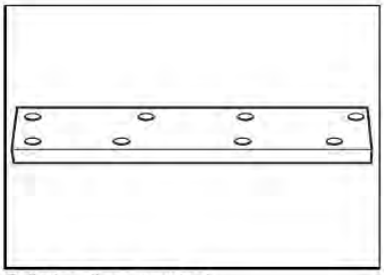
Screw M8x40 (item #7)
P/N 420 840 681 Recommended
All 2-stroke engines



Screw M8x70 (item #8)
P/N 420 841 201 Recommended
All 2-stroke engines
To be used with P/N 420 877 635.



Magneto Puller
P/N 420 876 081 Mandatory
All 2 strokes



Cylinder alignement tool
P/N 420 876 171 Recommended
377f, 440f
To use on exhaust side

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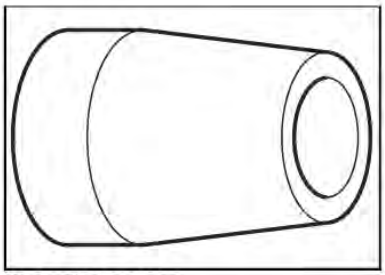
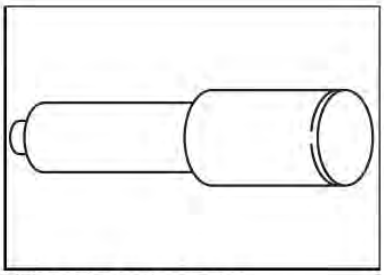
Engine

Half ring puller
P/N 420 876 330 Recommended
947 & 947 DI engines
To remove 52 mm O.D. bearings from the crankshaft.

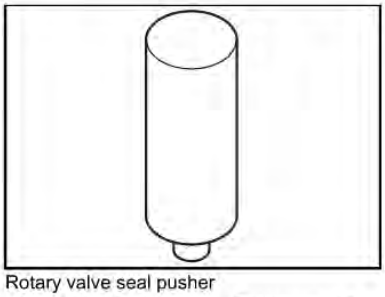


Seal protector sleeve
P/N 420 876 490 Recommended
Rotary valve engine with 12 mm shaft

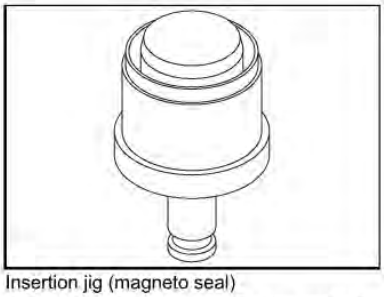


Rotary valve bearing pusher
P/N 420 876 500 Recommended
Rotary valve engines

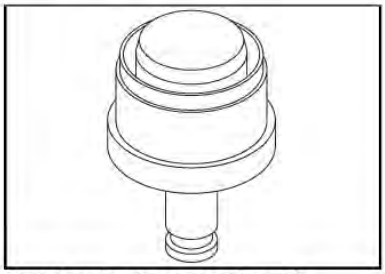
Rotary Valve Bearing Pusher
P/N 420 876 501 Recommended
717, 787 & 787 RFI engines



Rotary valve seal pusher
P/N 420 876 510 Recommended
440F
All rotary valve shaft seal with 12 mm I. D.



Insertion jig (magneto seal)
P/N 420 876 514 Recommended
454,494, 599, 670, 699 & 809

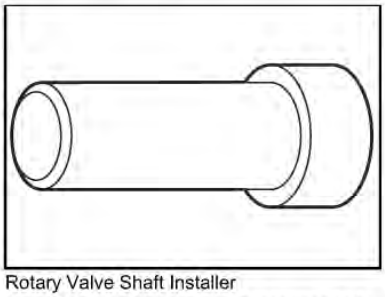


Gasket pusher (magneto side seal)
P/N 420 876 516 Recommended
599, 699, 779, 809

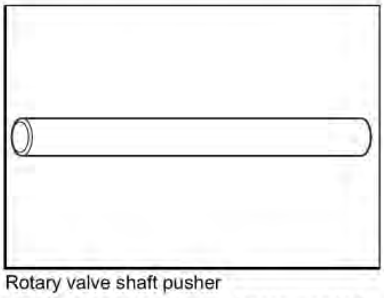
Crankshaft Protector
P/N 420 876 552 Recommended
All 2 stroke, except 247 (PTO)
Use with 420877635

Crankshaft Protector
P/N 420 876 557 Recommended
717 / 787 RFI / 800R / 800 HO

Crankshaft Distance Ring (MAG)
P/N 420 876 569 Recommended
All 2-stroke engines



Rotary Valve Shaft Installer
P/N 420 876 605 Recommended
717 engines & older than 1990



Rotary valve shaft pusher
P/N 420 876 610 Recommended
500lc
All rotary valve engine with 12 mm shaft.

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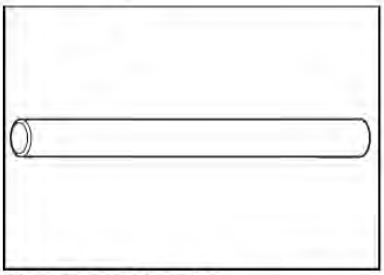
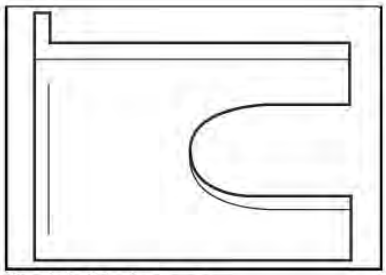
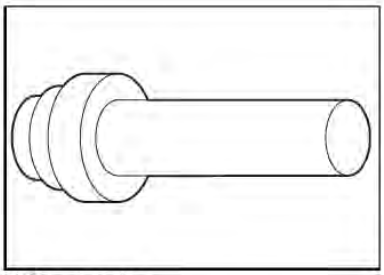
Engine



Rotary valve shaft pusher
P/N 420 876 612 Recommended
engine with rotary shaft 10 mm

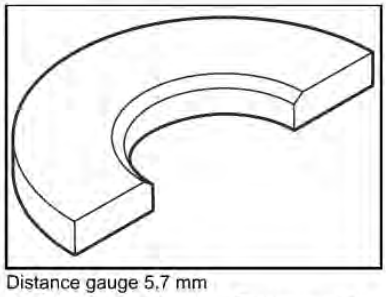


Crankshaft feeler gauge
P/N 420 876 620 Recommended
377, 443, 447 & 503

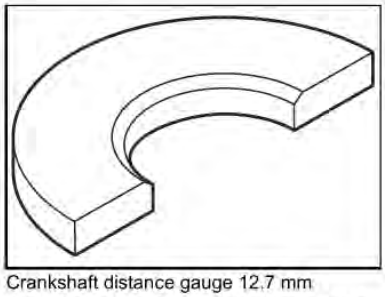


PTO seal pusher
P/N 420 876 660 Recommended
277

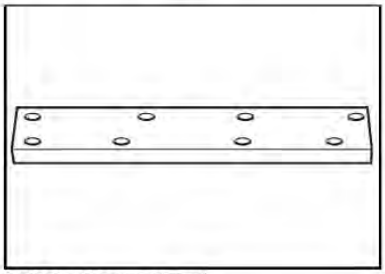
Gear holder
P/N 420 876 695 Recommended
277F, 377F, 447 & 503
To hold the oil pump gear



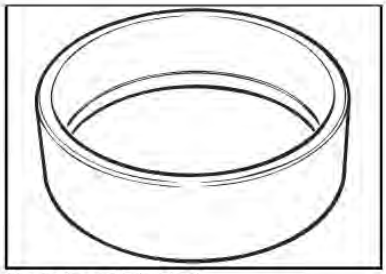
Distance gauge 5,7 mm
P/N 420 876 822 Recommended
377, 443 & 447



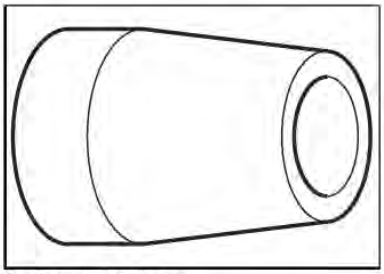
Crankshaft distance gauge 12.7 mm
P/N 420 876 824 Recommended
503F



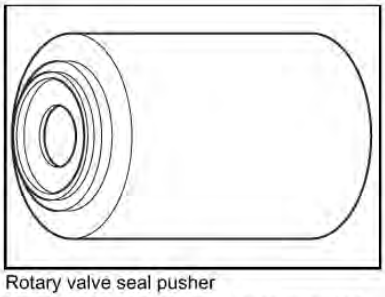
Cylinder Alignment Tool
P/N 420 876 904 Recommended
717 engines



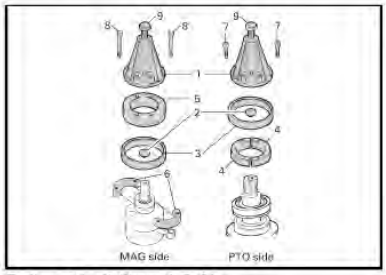
Magneto centering tool
P/N 420 876 922 Recommended
717 engines
All engines with Nippondenso 160 W CDI.



Seal protector sleeve
P/N 420 876 980 Recommended
Rotary valve engines with 10 mm shaft



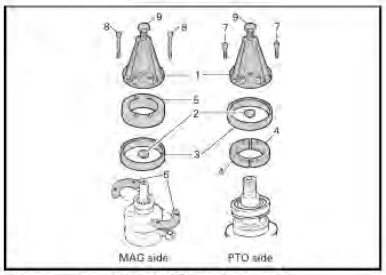
Rotary valve seal pusher
P/N 420 877 050 Recommended
500, 583, 670



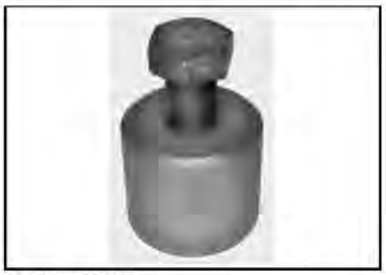
Puller et bolt (item 1 & 9)
P/N 420 877 635 Recommended
All 2-stroke engines

Ceramic seal pusher
P/N 420 877 820 Recommended
494 & 670

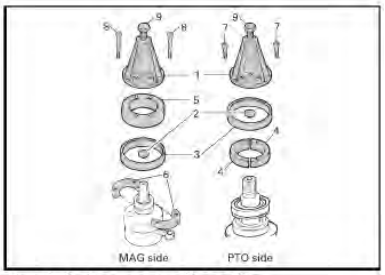
Engine



Replacement Puller Bolt (item #9)
P/N 420 940 755 Recommended
All 2-stroke engines
To use with puller P/N 420 877 635.

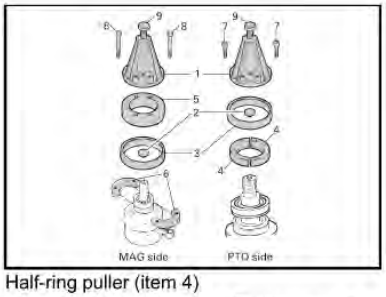


Flywheel puller
P/N 420 976 235 Recommended
247, 787, 787 RFI, 947 & 947 DI engines
Replacement bolt P/N 529 035 549.

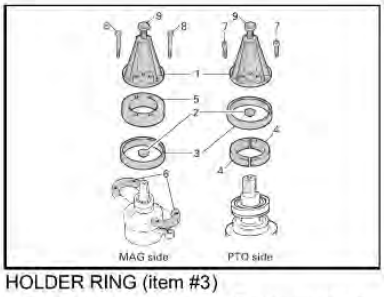


Crankshaft protector (item 2)
P/N 420 976 890 Recommended
247 engine

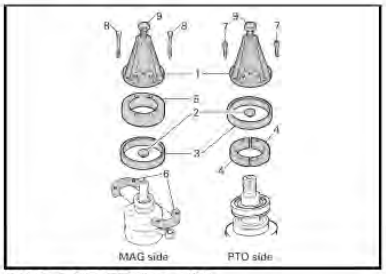
HALF RING PULLER
P/N 420 977 475 Recommended
717 / 787 RFI engines



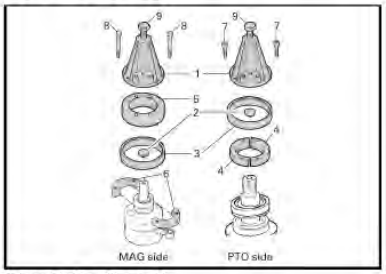
Half-ring puller (item 4)
P/N 420 977 479 Recommended
599, 699, 779, 809
3 cylinders crankshaft bearing remover; to use with 420877635



HOLDER RING (item #3)
P/N 420 977 480 Recommended
947DI engines

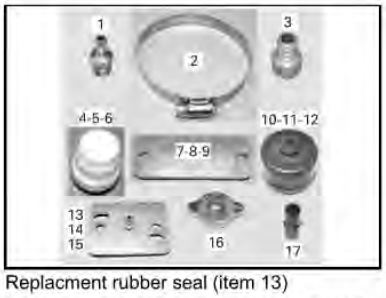


RING PULLER (item #3)
P/N 420 977 490 Recommended
717/787RFI engines

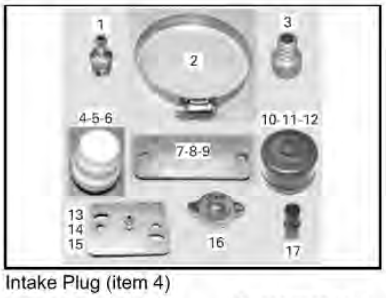


Ring Puller (item 3)
P/N 420 977 494 Recommended
599, 699, 779, 809
Crankshaft bearing installer

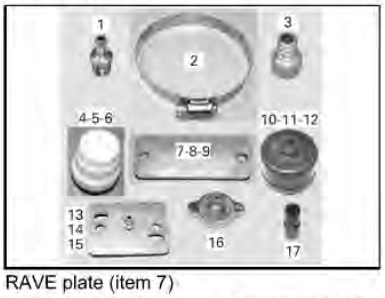
Adapter (item 3)
P/N 517 234 900 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



Replacment rubber seal (item 13)
P/N 529 010 902 Recommended
For kit 529010900



Intake Plug (item 4)
P/N 529 011 000 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



RAVE plate (item 7)
P/N 529 011 200 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

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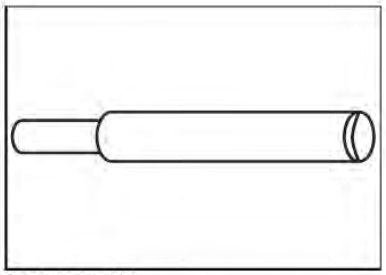
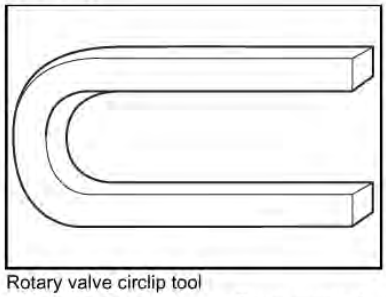
Engine

Replacment rubber seal (item 8)
P/N 529 011 203 Recommended
All 2 stroke engines
Replacment part for intem included in kit 861749100

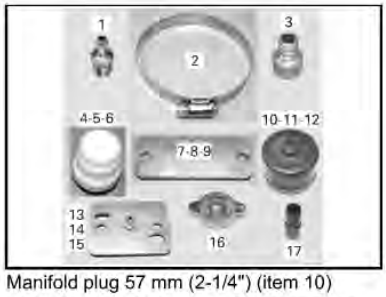
Circlip installer
P/N 529 016 900 Recommended
Replaced by 529035562



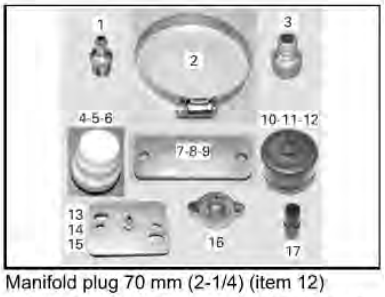
Aligning pin (4)
P/N 529 018 900 Recommended
CK3 1999: 467, 494 & 582



Rotary valve circlip tool
P/N 529 020 800 Recommended
1993 and earlier rotary valve engines



Manifold plug 57 mm (2-1/4") (item 10)
P/N 529 021 100 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

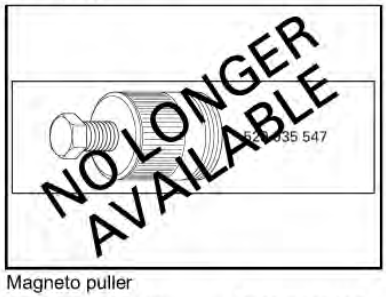


Manifold plug 70 mm (2-1/4) (item 12)
P/N 529 021 200 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

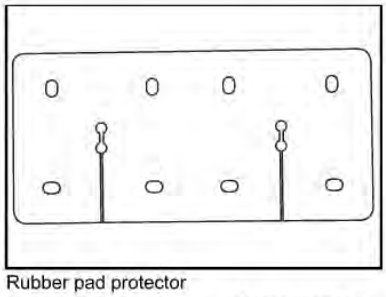
Exhaust plate (item 13)
P/N 529 021 300 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

Replacement rubber seal (item 13)
P/N 529 021 302 Recommended
Replacement part for kit 861749100

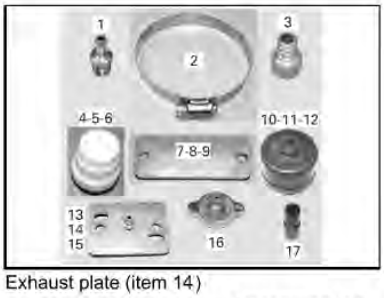
Vacuum pressure pump
P/N 529 021 800 Recommended
All models



Magneto puller
P/N 529 022 500 Recommended
Replaced by 529035547



Rubber pad protector
P/N 529 023 400 Recommended
1999 CK3 & S200 cageless bearing engines



Exhaust plate (item 14)
P/N 529 024 600 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

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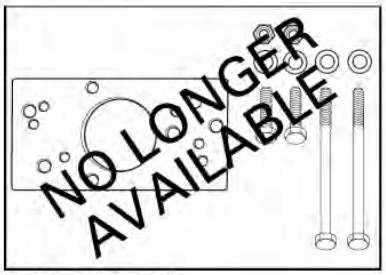
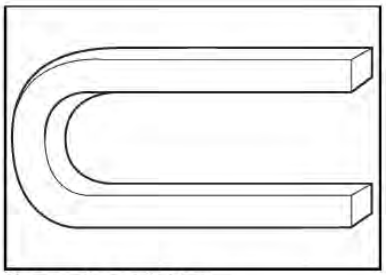
Engine



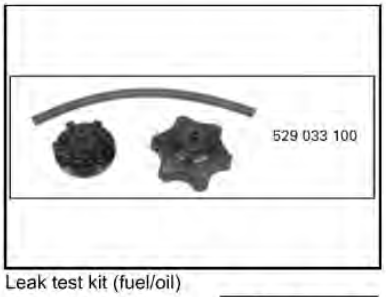
Base puller plate kit
P/N 529 024 900 Recommended
277



Rotary valve circlip Tool
P/N 529 029 100 Recommended
1994 and more recent rotary valve engine

Intake plug (item 5)
P/N 529 030 500 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

Piston ring compressor 78 mm
P/N 529 030 800 Recommended
670 engine

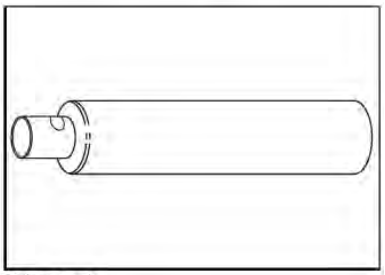


Leak test kit (fuel/oil)
P/N 529 033 100 Mandatory
All models

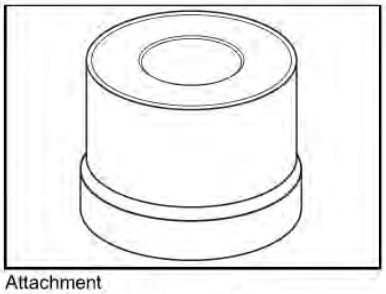
Exhaust spring installer/remover
P/N 529 035 400 Recommended
Replaced by 529035983

Piston pin puller
P/N 529 035 503 Mandatory
All 2-stroke engines

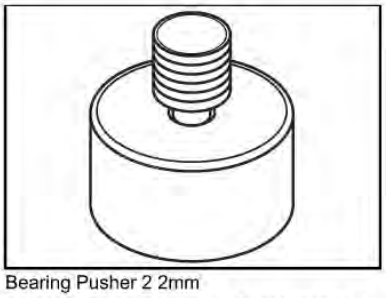
Replacement Protector Sleeve
P/N 529 035 513 Recommended
To be used with P/N 529 035 503.



Driver tool
P/N 529 035 521 Recommended
Mini Z



Attachment
P/N 529 035 522 Recommended
Mini Z



Bearing Pusher 2 2mm
P/N 529 035 523 Recommended
Mini Z

Sleeve kit 18 mm
P/N 529 035 541 Mandatory
Ski-Doo 277, Sea-Doo 587
To install cageless bearings. Used with 529035503

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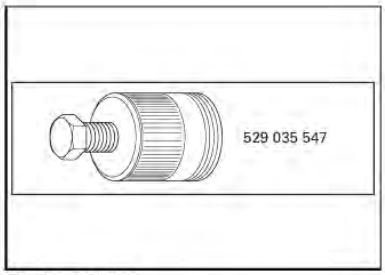
Engine

Sleeve kit 20 mm
P/N 529 035 542 Mandatory
717, 787 RFI, 600, 800HO
Used with 529035503

SLEEVE Kit 21mm
P/N 529 035 543 Mandatory
947, 947 DI, 800 R Engines
To install cageless bearings. Used with 529035503



Flywheel Puller
P/N 529 035 547 Mandatory
Replacement bolt 529035549. Use 20876081/295000125/420841591/290847220

Bolt M16 x 1,5 x 65mm
P/N 529 035 549 Recommended
DS 450
Goes with 529 035 547 & 420 976 235.

Spring installer remover
P/N 529 035 559 Recommended
Replaced by 529035983 or 529035989

Circlip Insertion Tool 18 mm
P/N 529 035 561 Recommended
Sea-Doo 587, Ski-Doo 277 engines

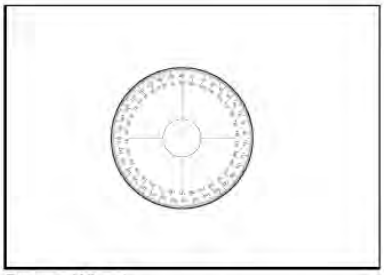
Circlip insertion Tool 20 mm
P/N 529 035 562 Recommended
593, 670, 693, 717, 787 & 787 RFI engine
Sleeve without groove P/N 529 035 567 also available.

Circlip Insertion Tool 21 mm
P/N 529 035 563 Recommended
947 & 947 DI engines
Sleeve without groove, P/N 529 035 569 also available.

Sleeve 18mm
P/N 529 035 565 Recommended
Replacement part for 529035561

20 mm Sleeve
P/N 529 035 567 Recommended
Use with 529 035 562.

21 mm Sleeve
P/N 529 035 569 Recommended
Use with P/N 529 035 563.



Degree Wheel
P/N 529 035 607 Mandatory
All rotairy valve engines

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Engine

Engine leak down test kit
P/N 529 035 661 Recommended
All 4-stroke engines
To perform a leak down test on engine.

Piston circlip installer
P/N 529 035 686 **Mandatory**
All engine with tab type circlip

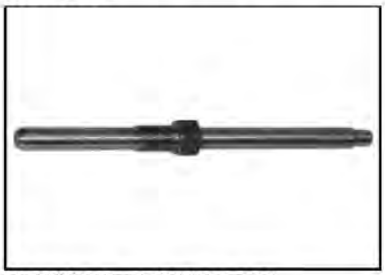
Valve stem seal installer
P/N 529 035 687 Recommended
610 engine

Valve spring compressor
P/N 529 035 724 Recommended
4-TEC engines
To be used with valve spring compressor cup 529 035 764 and 529 036 073

Valve spring compressor cup
P/N 529 035 764 Recommended
V-1000/ V-1300/330/400/490/660/810
To be used with valve spring compressor 519 035 724.

Piston circlip installer
P/N 529 035 765 Recommended
610/500/1503/V-1000 engines

Ceramic seal installer
P/N 529 035 766 Recommended
All V-twin, 330/400, 610/500, 500 eng.
Use with 529 036 130

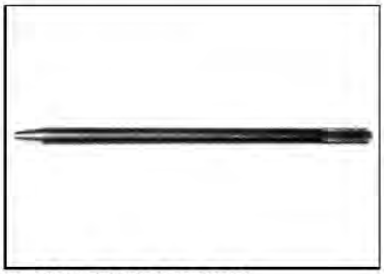


CRANKSHAFT LOCKING TOOL
P/N 529 035 821 Recommended
4-TEC 1503 engines

OIL SEAL GUIDE
P/N 529 035 822 Recommended
4-TEC 1503 engines

Engine removal hook
P/N 529 035 829 **Mandatory**
REV, RT

Engine lifting ring
P/N 529 035 830 **Mandatory**
2-stroke engines with 14 mm spark plugs



CAMSHAFT LOCKING TOOL
P/N 529 035 839 Recommended
V1000, V1300 &1503 engines

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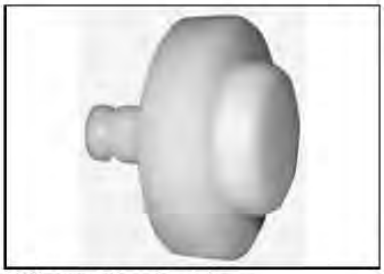
Engine

Suction pump
P/N 529 035 880 Recommended

Crankshaft locking tool
P/N 529 035 900 Recommended
V-1000, V-1300



PTO cover oil seal installer
P/N 529 035 910 Recommended
V1000, V-1300

Oil pump seal installer
P/N 529 035 911 Recommended
4-TEC V1000

Pusher 55/59 mm
P/N 529 035 913 Recommended
V1000, V1300

Pusher 32/42 mm
P/N 529 035 914 Recommended
V1000, V1300

2-stroke engine lifting hook
P/N 529 035 940 Recommended
All 2-stroke engines

Support sleeve
P/N 529 035 944 Recommended
V1000, V1300

Engine support bearing installer
P/N 529 035 952 Recommended
Elite

Engine support bearing
P/N 529 035 953 Recommended
Elite

Torque flange remover
P/N 529 035 958 Recommended
Elite

4-tooth socket
P/N 529 035 960 Recommended
Elite

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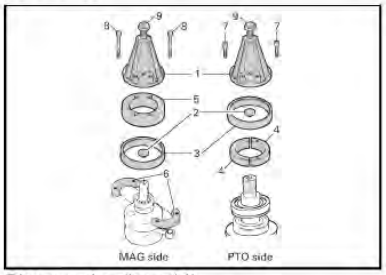
Engine

Manifold plug 63 mm (2-1/2") (item 11)
P/N 529 035 961 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

Exhaust plate (item 15)
P/N 529 035 962 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

Intake Plug (item 6)
P/N 529 035 963 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



Distance ring (item 14)
P/N 529 035 964 Recommended
693, 793
To be used with 420877635, for MAG side bearing

Crankshaft distance gauge
P/N 529 035 965 Recommended
552
To be used with 529035876

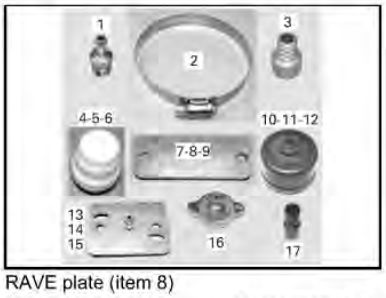
Crankshaft distance gauge
P/N 529 035 966 Recommended
493 & 593
To be used with item 529035976

Crankshaft distance gauge
P/N 529 035 967 Recommended
593HO, 593 SDI, 693 & 793
To be used with 529035976

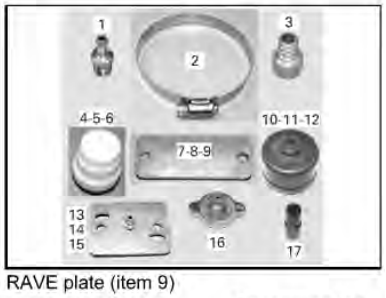
Crankshaft distance gauge
P/N 529 035 968 Recommended
793 HO & 793 HO SDI
To be used with 529035976

Bearing heater
P/N 529 035 969 Mandatory
All

Temperature indicator
P/N 529 035 970 Mandatory
All



RAVE plate (item 8)
P/N 529 035 971 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



RAVE plate (item 9)
P/N 529 035 972 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

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Engine

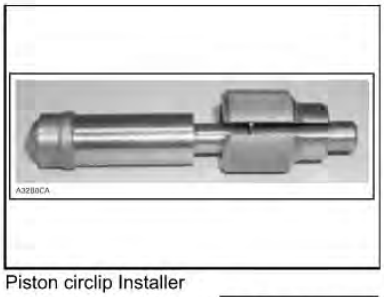
Resonator plug (item 17)
P/N 529 035 973 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

Support plate
P/N 529 035 976 Recommended
3 series & 552 engines
Used with 529035964, 965, 966, 967 & 968

Crankshaft MAG bearing installer
P/N 529 035 979 Recommended
493, 593 engines

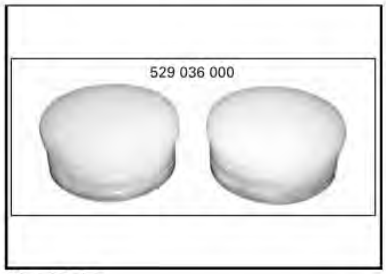
Crankshaft MAG bearing installer
P/N 529 035 980 Recommended
552, 593HO, 693, 793 engines

PTO bearing installer tool
P/N 529 035 990 Recommended
552, 593HO, 693, 793 engines



Piston circlip Installer
P/N 529 035 998 Mandatory
995 SDI

Exhaust plate
P/N 529 035 999 Recommended
995 SDI
For leak test.



Plug Intake
P/N 529 036 000 Recommended
995 SDI
For leak test.

Magneto holder
P/N 529 036 001 Mandatory
995 SDI

Piston pin puller
P/N 529 036 002 Mandatory
995 SDI

RAVE Plate
P/N 529 036 003 Recommended
995 SDI
For leak test.

Crank shaft bearing puller
P/N 529 036 004 Recommended
2 strokes Engine

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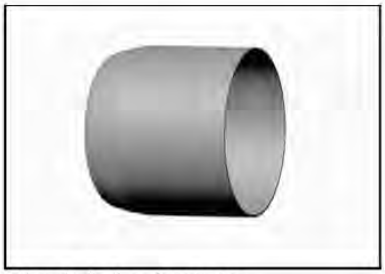
Engine

Crank protector
P/N 529 036 011 **Mandatory**
995 SDI

Ceramic seal installer
P/N 529 036 014 Recommended
All LC's engines without rotary valve

Engine lifting tool
P/N 529 036 022 Recommended
V-490, V-660 & V-810 engines

Drive shaft oil seal installer
P/N 529 036 028 Recommended
V-490, V-660 & V-810 engines



Drive shaft oil seal protector
P/N 529 036 029 Recommended
V-490, V-660 & V-810 engines

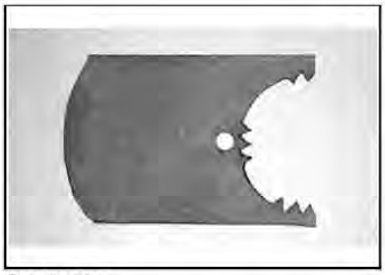
Crankcase support MAG/PTO
P/N 529 036 031 Recommended
V-490, V-660 & V-810 engines

PTO cover plain bearing remover
P/N 529 036 032 Recommended
V-490, V-660 & V-810 engines

PTO cover oil seal installer
P/N 529 036 033 Recommended
V-490, V-660 & V-810 engines

Crankshaft protector
P/N 529 036 034 Recommended
V-490, V-660 & V-810 engines

Distance gage for bearing on crankshaft
P/N 529 036 060 Recommended
797



Gear holder
P/N 529 036 061 Recommended
552 Fan
To hold oil pump gear.

No picture available

Intake Plug
P/N 529 036 128 Recommended
500SS, 600SDI, 800R

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Engine

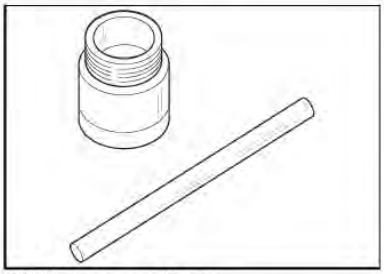
Ignition Timing Tool
P/N 529 036 129 Recommended
REV-XP

Ceramic seal pusher plate
P/N 529 036 130 Recommended
V-490, V-660 & V-810 engines
Use with ceramic seal installer 529035766

Engine Lifting Tool (E-TEC)
P/N 529 036 131 Mandatory
E-TEC

Dial Indicator Adaptor (E-TEC)
P/N 529 036 132 Mandatory
E-TEC

Piston circlip installer 21mm
P/N 529 036 138 Recommended
797



RAVE movement detector
P/N 861 725 800 Recommended
All RAVE equipped, except 797

Engine leak test kit
P/N 861 749 100 Mandatory
All
To use with hand pump 529021800

Piston ring compressor
P/N Snap-on RC 980 Recommended
4-TEC
Not sold by BRP

Torque angle gauge
P/N Snap-on TA362 Recommended
Used on most 4-stroke engines.
Not sold by BRP

Valve stem seal removal pliers
P/N Snap-on YA 8230 Recommended
1503, 991 engines, DS650
Not sold by BRP

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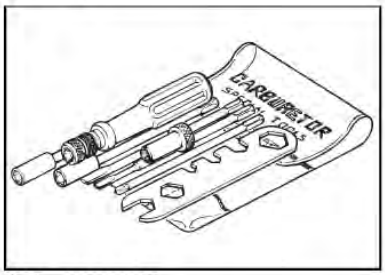
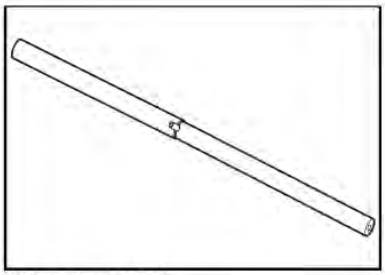
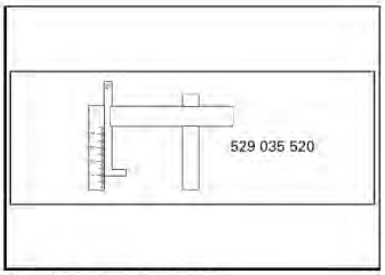
Fuel



Carburetor tool kit
P/N 404 112 000 Recommended

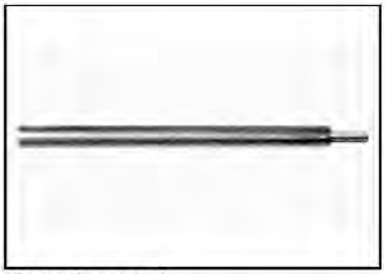


Choke plunger tool
P/N 529 032 100 Recommended
All equipped with choke, except ZX



Float lever measurement
P/N 529 035 520 Recommended
Carburetor-equipped vehicles

Fuel pressure gauge
P/N 529 035 591 Recommended
787 RFI, 793 SDI & 4-TEC engines
Replaced by 529 035 709. Spare plastic clip P/N 275500429



Choke plunger tool
P/N 529 035 602 Recommended
VM carburetor on all 552

Gas Tank Nut Wrench
P/N 529 035 603 Recommended
CK3, ZX

Pressure gauge
P/N 529 035 709 Mandatory
Injection type engines
Use with 529035652, 529035714 & 529036023

Fuel line remover
P/N 529 035 714 Mandatory
Injection models
Used also with gauge P/N 529 035 709, 529 035 652 & 529 036 023

Needle jet height tool: guide
P/N 529 035 835 Recommended
TM-40 carburator, 2002-3
Part of kit 590122400

Needle jet height tool: pusher
P/N 529 035 836 Recommended
TM-40 carburator, 2002-3
Part of kit 590122400

Needle jet height tool: long pusher
P/N 529 035 837 Recommended
TM-40 carburator, 2002-3
Part of kit 590122400

Needle jet height tool: short pusher
P/N 529 035 838 Recommended
TM-40 Carburator, 2002-3
Part of kit 590122400

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Fuel

Fuel tank wrench
P/N 529 035 891 Recommended
REV, REV-XP, RT & RF

Fuel Pump Nut Tool
P/N 529 035 899 Recommended
2-TEC SDI & 4-TEC engines

Fuel hose adapter
P/N 529 036 023 Mandatory
Injection type vehicles
To be used with 529 035 709.
Replacement clip 513 033 135

Fuel Pump Nut Tool
P/N 529 036 118 Mandatory
REV-XP
For SDI and Summit models

Extractor adaptor
P/N 529 036 136 Recommended
E-TEC, V-twin

Injector retainer plate
P/N 529 036 137 Recommended
E-TEC

Needle jet height tool kit
P/N 590 122 400 Recommended
TM-40 carburator, 2002 & 2003

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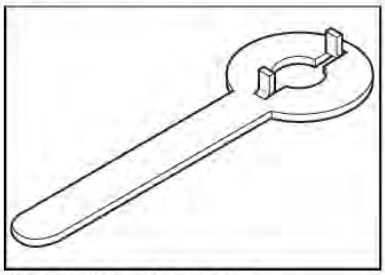
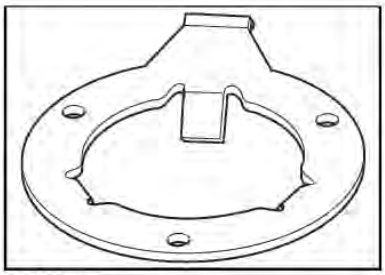
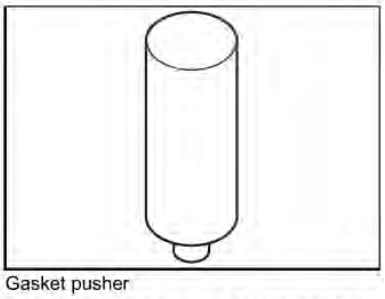
Cooling



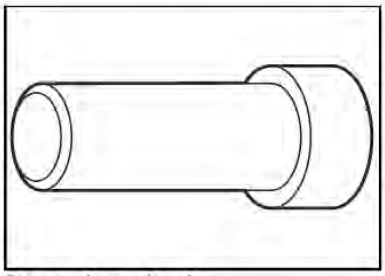
Coolant oil pump gear holder
P/N 420 277 905 Recommended
717, 583, 670, 599, 699, 779, 809 engine



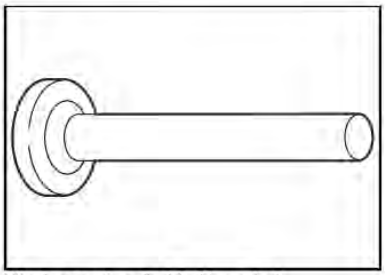
Fan Holder
P/N 420 876 357 Mandatory
All axial fan engines exept 552F



Gasket pusher
P/N 420 876 512 Recommended
500 LC, 670, 583
Rotary valve, 10 mm impeller shaft



Rotary valve seal pusher
P/N 420 876 607 Recommended
500lc, 583, 670

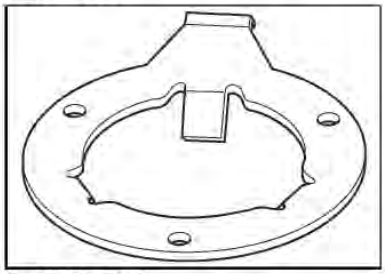


Washer pusher (behind impeller)
P/N 529 020 700 Recommended
Rotary valve engines

Radiator Cap Pressure Test
P/N 529 021 400 Recommended
4-TEC models
Replacement part for item also included in kit 861749100

Coolant Pump Seal Pusher
P/N 529 035 823 Recommended
4-TEC 1503

Test cap
P/N 529 035 991 Recommended
All models
To be used with Vacuum/Pressure Pump 529 021 800.



Fan Holder Tool
P/N 529 036 006 Mandatory
552F

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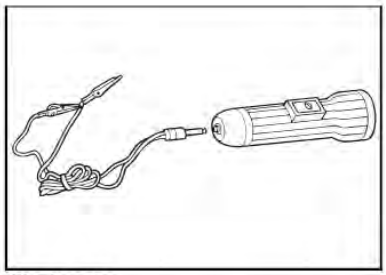
Electrical

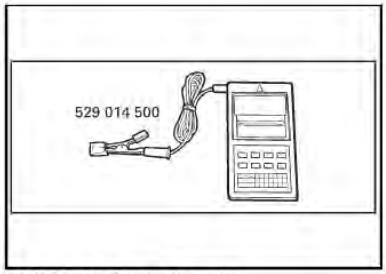
MPI communication cables only
P/N 278 001 052 Recommended
MPI not included



Circuit tester
P/N 414 012 200 Recommended
All

ECM adapter tool
P/N 420 277 010 Recommended
All models
All injected 2-TEC & 4-TEC with VDO ECM

MPEM programmer guide
P/N 484 300 139 Recommended
Guide: how to use hand held programmer
Has been replaced by B.U.D.S., the MPI and recently by the MPI-2.



Digital induction tachometer
P/N 529 014 500 Recommended
All models

Stroboscopic Timing Light
P/N 529 031 900 Recommended
All 2-stroke

Bypass Wire
P/N 529 033 300 Recommended
CK3 with magneto 360W

Adaptor
P/N 529 033 800 Recommended
GT SE 1997-8 & Summit X 670 1998

Choke Nut Removal Tool
P/N 529 034 600 Recommended
Replaced by 529035943

Adaptor
P/N 529 035 550 Recommended
1998, Summit 670 DPM

9 V battery supply cable
P/N 529 035 675 Mandatory
All DESS equipped
Used with 529035869

MPI commiunication Kit
P/N 529 035 676 Recommended
Replaced by MPI-2

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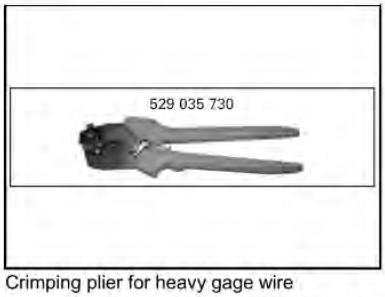
Electrical

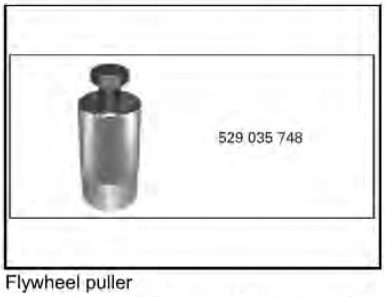
Diagnostic adaptor for VCK
P/N 529 035 679 Recommended
To be used with the MPI, connects to 529 035 807.

9 Pins to 25 Pins Adaptor
P/N 529 035 681 Recommended
To connect communication cable P/N 529 035 697 of MPI to older PC.

MPI-2 Communication Cable Extension
P/N 529 035 697 Recommended
Male/female DB9 extension can be purchassed at any PC store; max. 25 ft lg.



Crimping plier for heavy gage wire
P/N 529 035 730 Recommended
All models
Ex.: To crimp battery cable terminals.



Flywheel puller
P/N 529 035 748 Recommended
All V-twin

Multilock 070 Die
P/N 529 035 828 Recommended
For small connectore of AMP Multilock co
To use with crimping tool P/N 529035909

Fluke 115 digital multimeter
P/N 529 035 868 Recommended
All models

T-harness
P/N 529 035 869 Mandatory
All DESS equipped

MPEM programmer kit
P/N 529 035 878 Recommended
All 2-stroke models
No longer sold, replaced by MPI-2, P/N 529 036 018.

B.U.D.S. DESS Key
P/N 529 035 896 Recommended
MY 2004 with DESS
To wake up MPEM

D.E.S.S. Adaptor
P/N 529 035 904 Mandatory
Connects to the diagnostic cable of the MPI or MPI-2.

KOSTAL Die
P/N 529 035 906 Recommended
All models with KOSTAL ECM connectors
To use with crimping tool 529 035 909 to crimp ECU connectors

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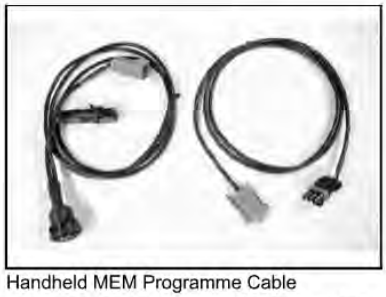
Electrical

AMP die
P/N 529 035 908 Recommended
All models with AMP connectors
To use with crimping tool 529 035 909 to crimp Deutsch connectors.

Crimping tool
P/N 529 035 909 Recommended
To use with compatible die to crimp different connectors

D.E.S.S. Post Remover
P/N 529 035 943 Recommended
All DESS equipped models

MPI communication kit
P/N 529 035 981 Recommended
Spare cables are still available. See MPI-2



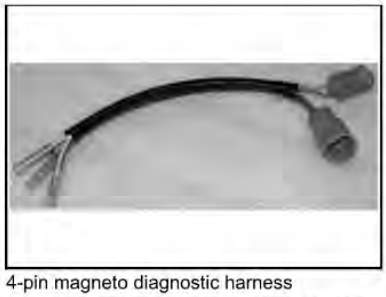
Handheld MEM Programme Cable
P/N 529 035 993 Recommended
6 pin connector

12 V battery supply cable
P/N 529 035 997 Recommended
Used with 529035869

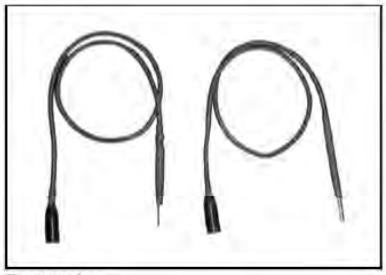
Magneto harness adapter
P/N 529 036 016 Recommended
1503, 449
To test the magneto.

MPI-2 interface card
P/N 529 036 018 Mandatory
Replaces the MPI.

D.E.S.S. Post Interface
P/N 529 036 019 Mandatory
To programm D.E.S.S. keys with the MPI-2.



4-pin magneto diagnostic harness
P/N 529 036 062 Recommended
V810



Test probes
P/N 529 036 063 Recommended
All models
To back probe various connectors.

MPI-2 diagnostic cable
P/N 710 000 851 Mandatory
All DESS-equipped vehicles

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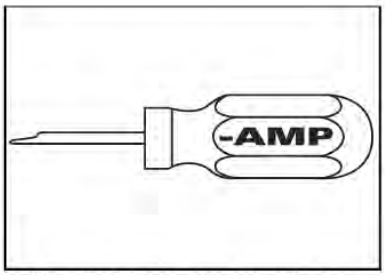
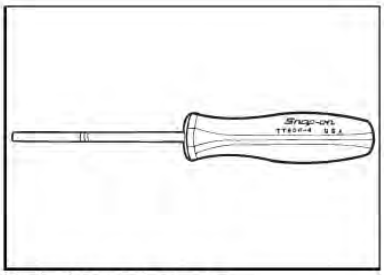
Electrical

Bypass wire kit
P/N 861 780 600 Recommended
2002 ZX 360W magneto

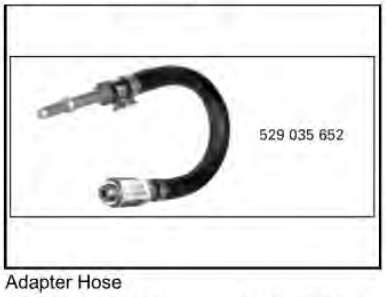


Multilock terminal housing connector ext
P/N AMP 755430-2 Recommended
Not sold by BRP



Packard terminal extractor
P/N Snap-on TT600-4 Recommended
Not solb by BRP

Lubrication



Adapter Hose
P/N 529 035 652 Recommended
4-TEC engines
Used with 529 035 709.

OIL FILTER COVER EXTRACTOR
P/N 529 036 038 Recommended
4-TEC 1503

Free play throttle gauge
P/N 529 036 042 Recommended
Replacement part for 861205900

Oil pump adj. procedure card
P/N 529 036 043 Recommended
Replacement part for 861205900

Oil Pump Ajuster
P/N 529 036 045 Recommended
Replacement part for 861205900

Oil Filter Cover Puller
P/N 529 036 057 Recommended
4-TEC 1503
Replaced by 529 036 108

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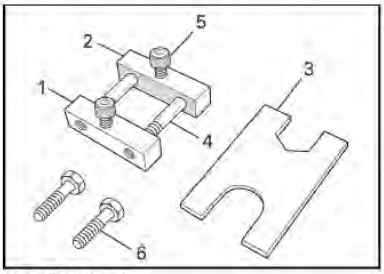
Lubrication

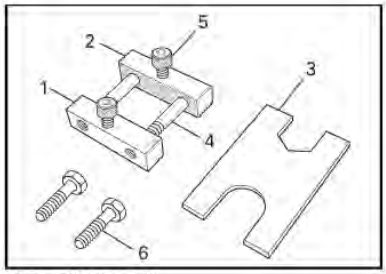
Oil filter cover puller
P/N 529 036 108 Recommended
1503
Used with 529 036 038.

Oil pump adjustment kit
P/N 861 205 900 Mandatory
2005 and up LC engines

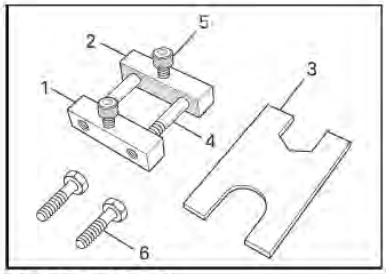
Propulsion / Transmission



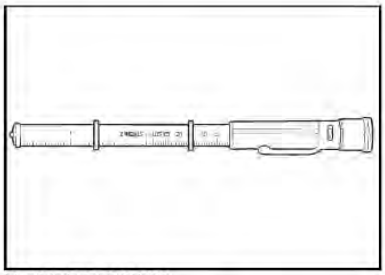
Bolt M10 (item 4)
P/N 222 007 565 Recommended
All except Élan
Part of kit 861725700



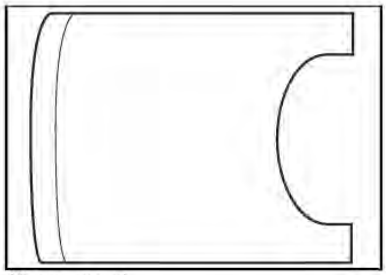
Screw M8 (item 6)
P/N 222 082 565 Recommended
All except Élan
Part of kit 861725700



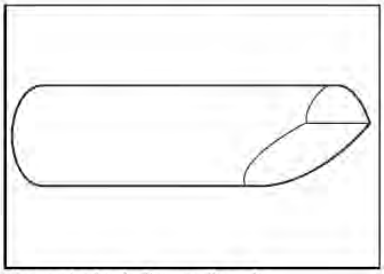
Allen screw (item 5)
P/N 222 983 065 Recommended
All except Élan
Part of kit 861725700



TESTER TENSION
P/N 414 348 200 Mandatory
All



Alignment tool
P/N 420 476 010 Recommended
Skandic WT & Alpine II gearbox



Transmission ball mounting pin
P/N 420 476 020 Recommended
Alpine II gearbox

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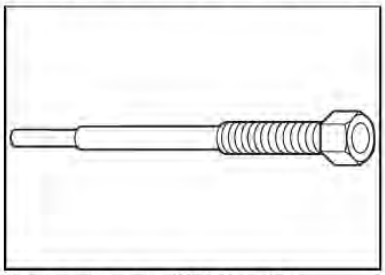
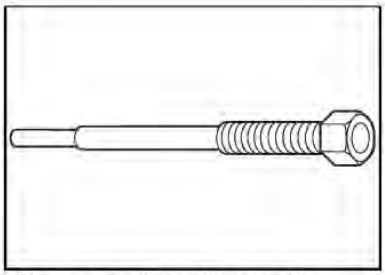
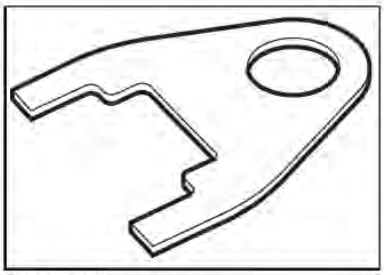
Propulsion / Transmission



Driven pulley puller (SAE threads)
P/N 529 002 100 Recommended
Square shaft equipped vehicles

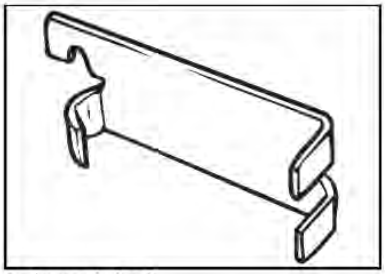


Driven pulley puller (metric threads)
P/N 529 002 800 Recommended
277-377

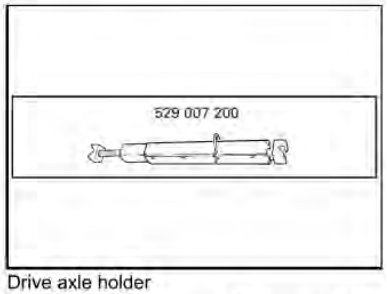


Fork (qty 3)
P/N 529 005 500 Mandatory
All vehicles with TRA drive pulley

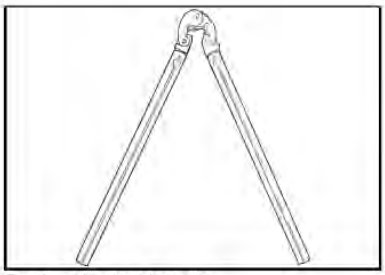
Drive pulley holder (CVT)
P/N 529 006 400 Recommended



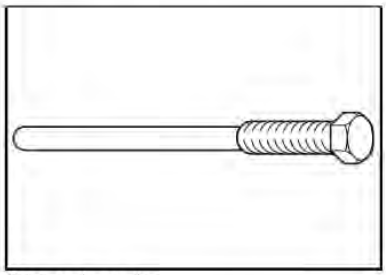
Spring scale hook
P/N 529 006 500 Recommended
Tundra II LT



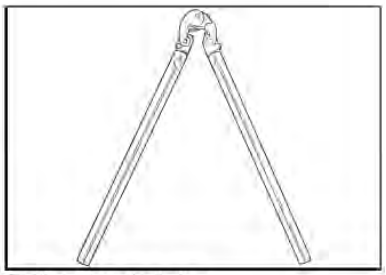
Drive axle holder
P/N 529 007 200 Recommended
All



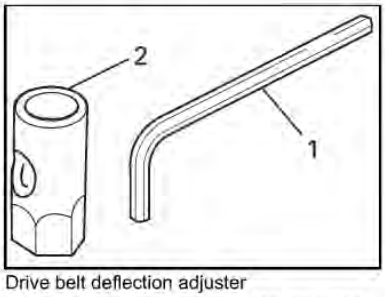
Track wide cleat installer
P/N 529 007 700 Recommended
1992 and older with wide cleat



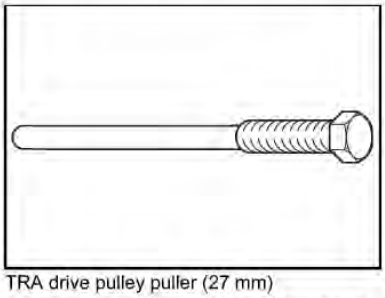
Drive pulley puller
P/N 529 007 900 Mandatory
443, 467, 503.536 & 537 TRA



Track narrow cleat plier
P/N 529 008 500 Recommended
1993 and older models



Drive belt deflection adjuster
P/N 529 008 700 Recommended
Formula and LPV 27 driven pulley
1: 420878730 , 2: 529015000; available as a kit only.



TRA drive pulley puller (27 mm)
P/N 529 010 100 Recommended
TRA (27 mm) except 454, 670 & 779

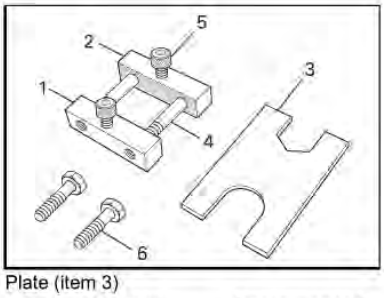


Plate (item 3)
P/N 529 010 600 Recommended
All except Élan
Part of kit 861725700

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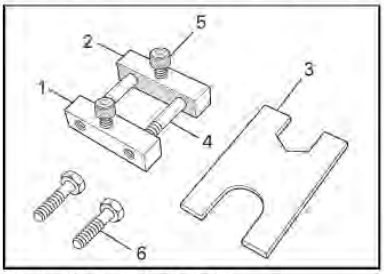
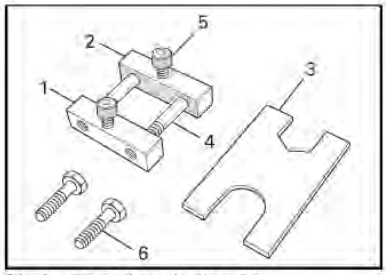
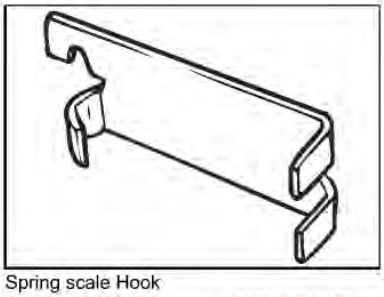
Propulsion / Transmission



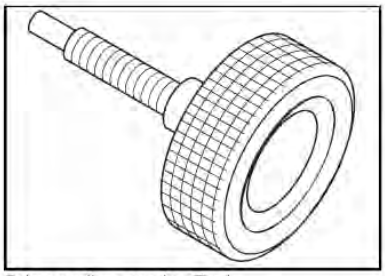
Block with threads (item 1)
P/N 529 010 700 Recommended
All except Élan
Part of kit 861725700



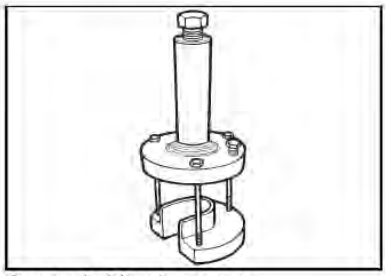
Block without threads (item 2)
P/N 529 010 800 Recommended
All except Élan
Part of kit 861725700



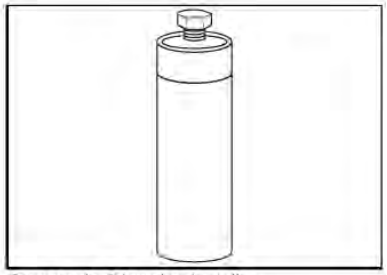
Spring scale Hook
P/N 529 015 200 Recommended
1994 models and older, except Alpine II



Driven pulley opening Tool
P/N 529 017 200 Recommended
Almost all models



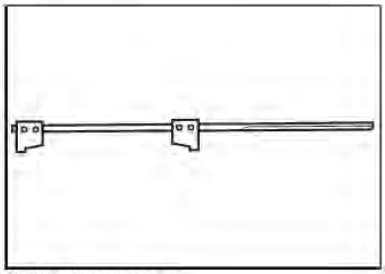
Countershaft bearing remover
P/N 529 018 700 Recommended
PRS chassis



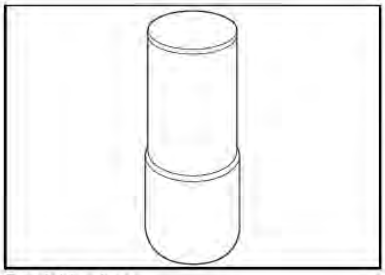
Countershaft bearing installer
P/N 529 018 800 Recommended
PRS chassis

Drive pulley puller
P/N 529 022 400 Mandatory
2003 and up bombardier Lite & TRA

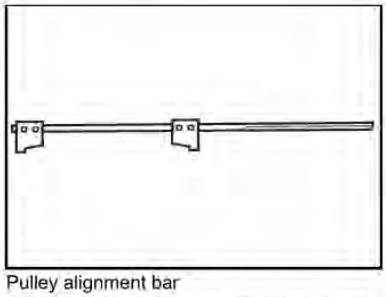
Drive Puller
P/N 529 025 000 Recommended
Skandic 440 LT



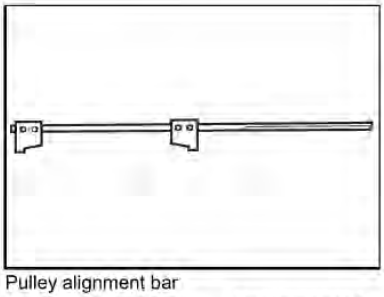
Pulley alignment bar
P/N 529 025 600 Recommended
PRS chassis



Burnishing bar
P/N 529 026 402 Recommended
Tundra II LT, Safari / Skandic



Pulley alignment bar
P/N 529 026 700 Recommended
S-2000, F-2000



Pulley alignment bar
P/N 529 026 800 Recommended
Safari L

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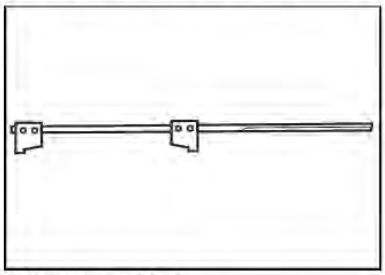
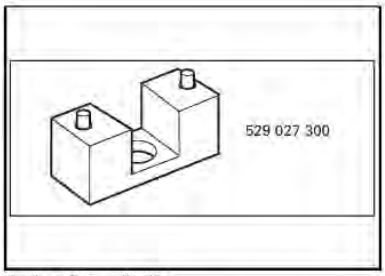
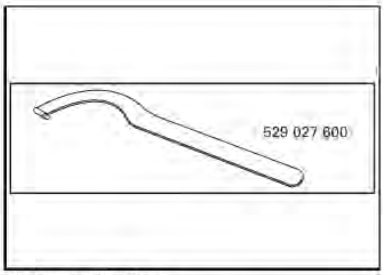
Propulsion / Transmission



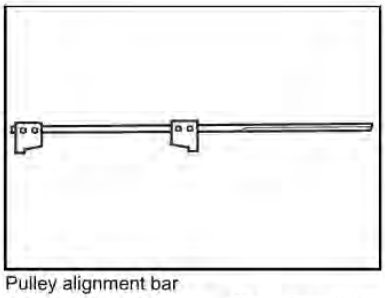
Pulley alignment bar
P/N 529 026 900 Recommended
Tundra II LT/R



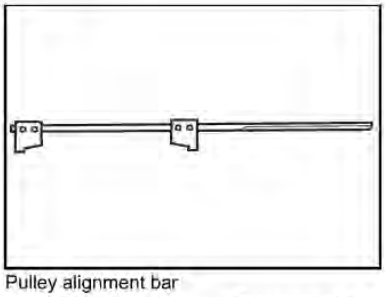
Spring Cover Puller
P/N 529 027 300 Recommended
Bombardier Lite



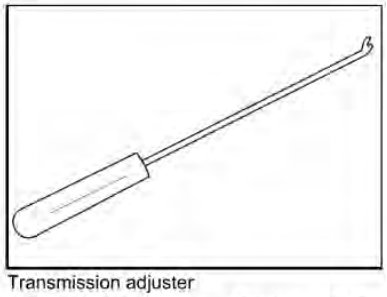
Clutch Holder Tool
P/N 529 027 600 Mandatory
Bombardier Lite



Pulley alignment bar
P/N 529 028 200 Recommended
Alpine II

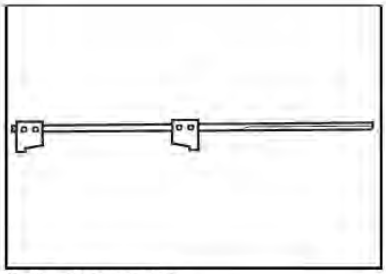


Pulley alignment bar
P/N 529 028 300 Recommended
Élan

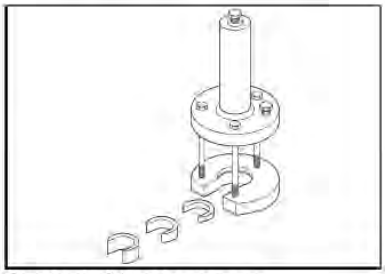


Transmission adjuster
P/N 529 028 500 Recommended
F series with "twist shifter" reverse tr

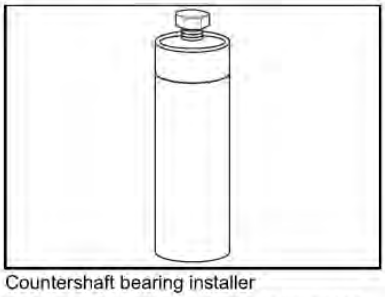
Track cleat installer
P/N 529 028 800 Recommended
1994 and newer models
Replaced by 529036044.



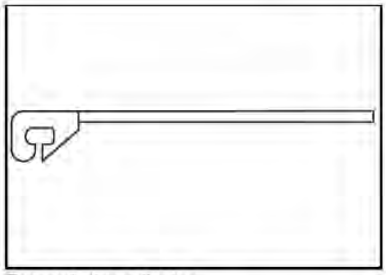
Pulley alignment bar
P/N 529 030 000 Recommended
S series with Bombardier LITE



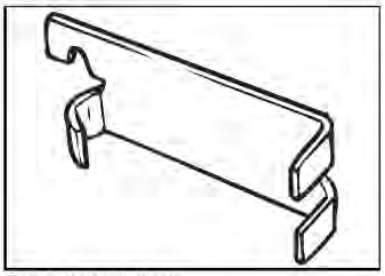
Countershaft bearing remover
P/N 529 030 100 Recommended
F & S series



Countershaft bearing installer
P/N 529 030 200 Recommended
S & F series



Transmission adjuster
P/N 529 030 300 Recommended
"Push-pull shifterl" reverse transmissio



Spring balance hook
P/N 529 030 900 Recommended
S-2000, F-2000 1995 and newer

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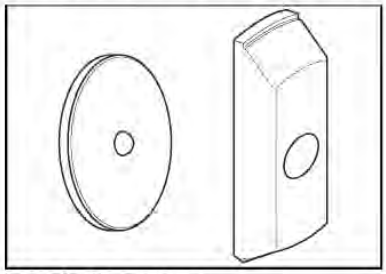
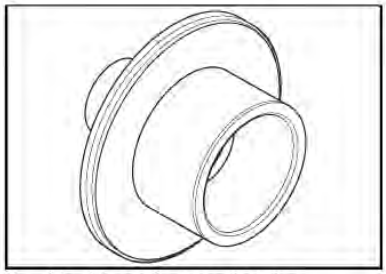
Propulsion / Transmission

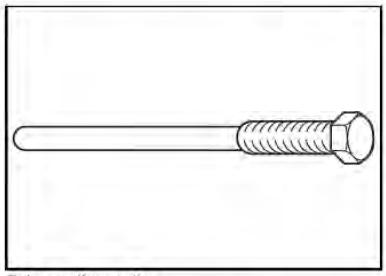


Large bushing extractor
P/N 529 031 100 Recommended
Formula type driven pulley
To use with puller: 529018600



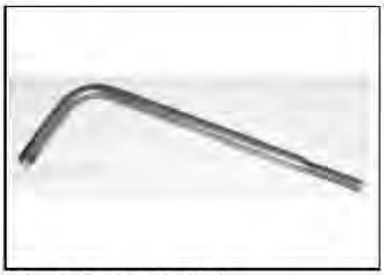
Small bushing puller/large installer
P/N 529 031 200 Recommended
All
Except Tundra R, Skandic WT/SWT/WT LC, S series

Bushing extractor/installer
P/N 529 031 300 Recommended
TRA cover with replacable bushing



Drive pulley puller
P/N 529 031 400 Recommended
277F, 377F
2002 and older Bombardier Lite equipped vehicles

Chaincase seal pusher
P/N 529 032 300 Recommended
Replaced by 529035584

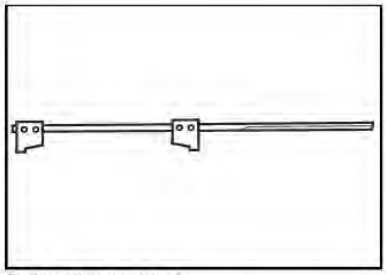


Driven pulley opening tool
P/N 529 034 200 Recommended
Tundra R up to 2005

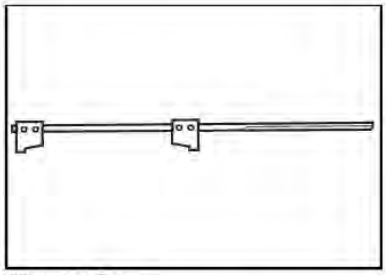
Driven pulley spring compressor
P/N 529 035 300 Recommended
Tundra R

Driven pulley opening tool
P/N 529 035 501 Recommended
HPV, LPV & some Formula pulley

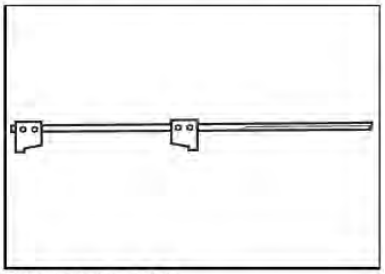
Pulley spring compressor
P/N 529 035 524 Recommended
All
This tool has been replaced by 529036012



Pulley alignment bar
P/N 529 035 527 Recommended
CK3 exept Mach Z 1998



Alignment Barre
P/N 529 035 530 Recommended
S-2000 with TRA and RER



Pulley alignment bar
P/N 529 035 545 Recommended
1998 Skandic WT

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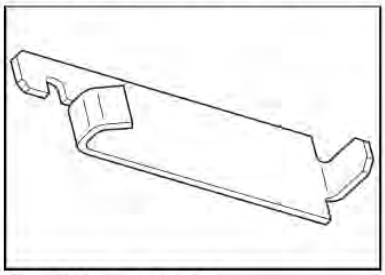
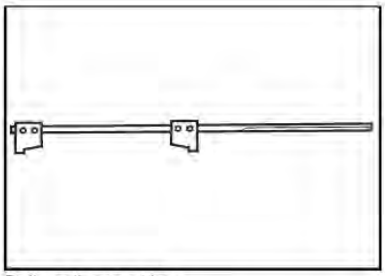
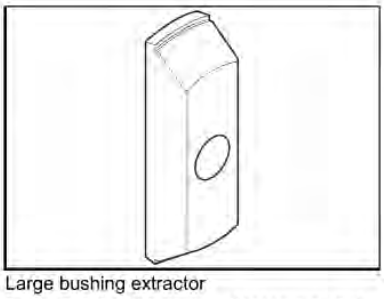
Propulsion / Transmission



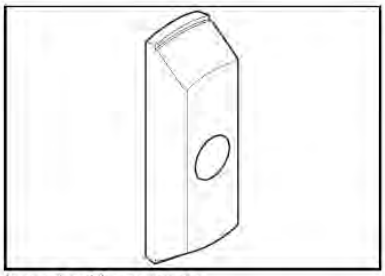
Spring scale hook (long)
P/N 529 035 557 Recommended
CK3 without RER



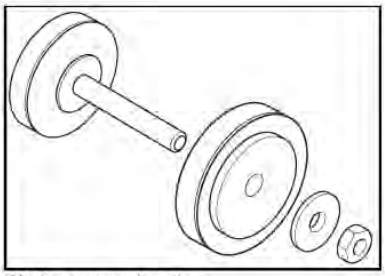
Pulley alignment bar
P/N 529 035 572 Recommended
1998 Mach Z



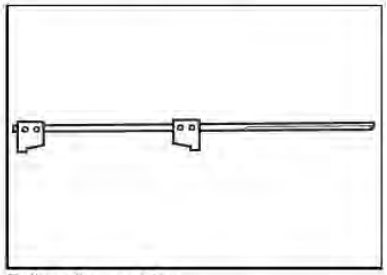
Large bushing extractor
P/N 529 035 575 Recommended
LPV27 driven pulley
To be used with 529035524



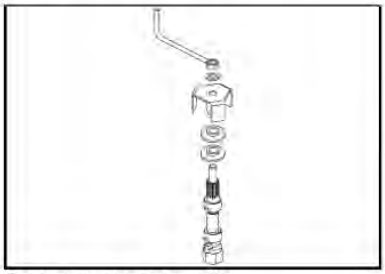
Large bushing extractor
P/N 529 035 576 Recommended
Formula type driven pulley
To be used with 529035524



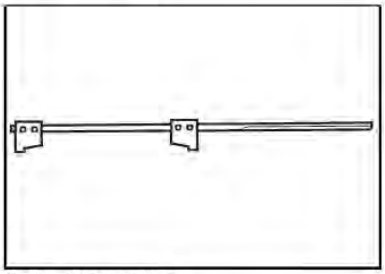
Chain case seal pusher
P/N 529 035 584 Recommended
All Frames
Replaces 529032300



Pulley alignment bar
P/N 529 035 586 Recommended
S & ZX series

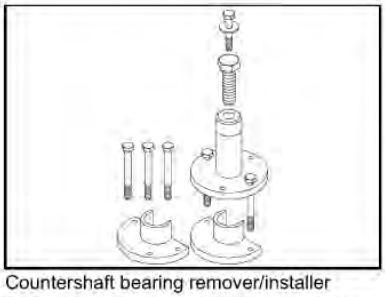


Replacement part for puller
P/N 529 035 588 Recommended
For 529036012

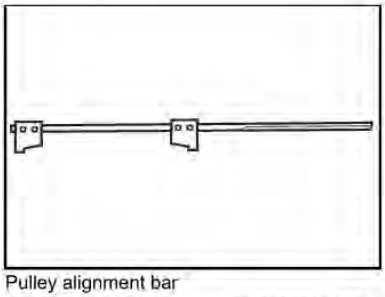


Pulley alignment bar
P/N 529 035 594 Recommended
CK3 series

Drive pulley retainer
P/N 529 035 674 Mandatory
All TRA



Countershaft bearing remover/installer
P/N 529 035 699 Recommended
REV, RT, ZX & CK3
Replaces 529035554.



Pulley alignment bar
P/N 529 035 808 Recommended
Skandic II

Countershaft bearing remover
P/N 529 035 812 Recommended
Skandic LT

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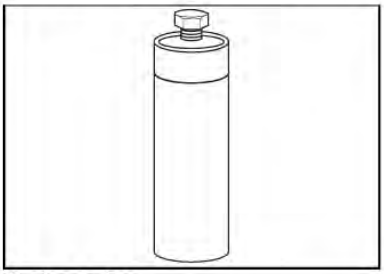
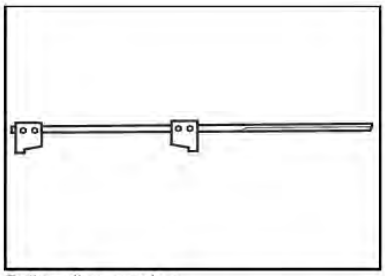
Propulsion / Transmission



Bearing pusher
P/N 529 035 815 Recommended
Skandic 440 LT

Tapered Tool
P/N 529 035 826 Recommended
Skandic 440 LT
Replacement tool from kit 529025400

Universal alignement bar
P/N 529 035 831 Mandatory
All escept CK3 & ELITE



Pulley alignment bar
P/N 529 035 832 Recommended
ZX series

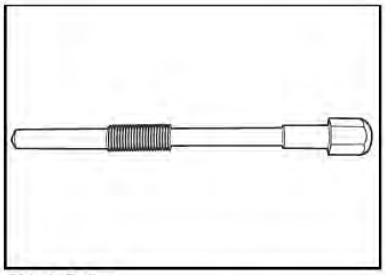
Gouvernor Cup Remover
P/N 529 035 894 Recommended
TRA IV

Sliding half bushing remover/installer
P/N 529 035 931 Recommended
TRA III & TRA IV

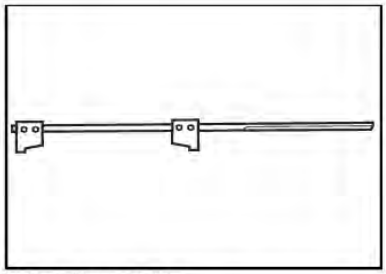
Hydraulic gauge kit
P/N 529 035 939 Recommended
TRA IV

Clutch Support
P/N 529 035 942 Recommended
TRA IV

Belt tensioner tool
P/N 529 035 957 Recommended
Elite



Clutch Puller
P/N 529 035 959 Recommended
Elite



Pulley alignment bar
P/N 529 035 974 Recommended
2004 Skandic WT/SWT/SUV 550

Countershaft alignment bearing
P/N 529 036 009 Recommended
RT

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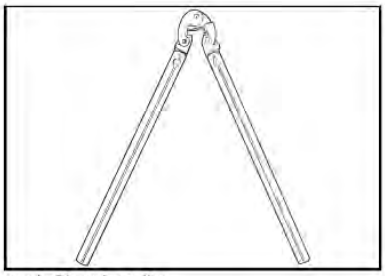
Propulsion / Transmission

BOLT PULLER COUNTERSHAFT
P/N 529 036 010 Recommended
RT, DS 450

Clutch/driven spring compressor tool
P/N 529 036 012 **Mandatory**
Most drive & driven pulleys

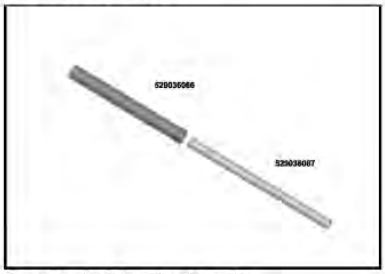
Driven spring compressor
P/N 529 036 035 Recommended
RF 277F 2006 Only
To take apart the driven



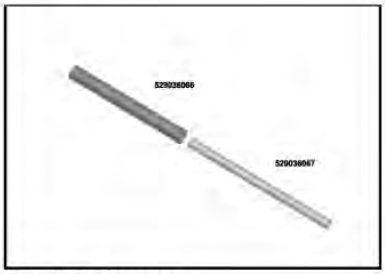
track Cleat Installer
P/N 529 036 044 Recommended
1994 and newer models.
Stronger version of tool 529028800. For newer track design.

Driven spring compressor
P/N 529 036 064 **Mandatory**
REV-XP

Countershaft bearing remover
P/N 529 036 065 **Mandatory**
REV-XP



Countershaft bearing installer
P/N 529 036 066 **Mandatory**
REV-XP



Countershaft support
P/N 529 036 067 **Mandatory**
REV-XP

Retaining upper gear tool
P/N 529 036 110 **Mandatory**
REV-XP

Installer/remover upper bearing
P/N 529 036 111 **Mandatory**
REV-XP

Installer/remover lower bearing
P/N 529 036 112 **Mandatory**
REV-XP

Screw Cap Socket
P/N 529 036 122 Recommended
600 RS

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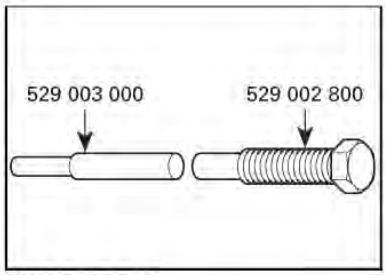
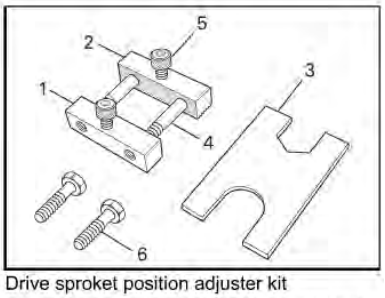
Propulsion / Transmission

Driven pulley open Tool
P/N 529 036 127 Recommended
REV-XP



Drive pulley puller
P/N 860 414 200 Recommended
Square shaft equipped vehicles (metric)
Made of 529003000 & 529002800



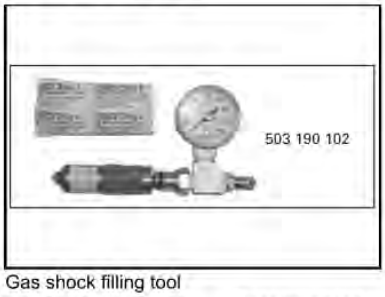
Drive sproket position adjuster kit
P/N 861 725 700 Recommended
All except Élan
Includes: 529010700, 529010800, 529010600, 222007565, 222983065 &

Steering

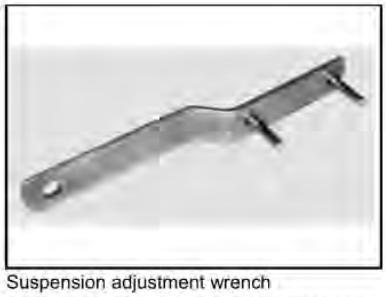
Heated grip installer
P/N 529 035 897 Recommended
Straight grips

Heated grip installer
P/N 529 035 936 Recommended
Models witrh J-hook

Suspension



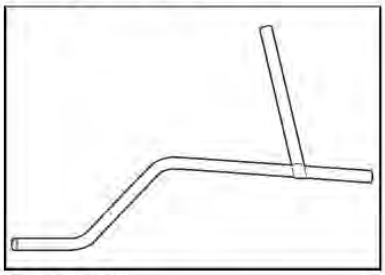
Gas shock filling tool
P/N 503 190 102 Recommended
T/A shocks
To be used with P/N 529035570. Spare needle P/N 529035930.



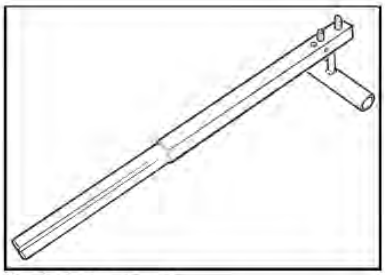
Suspension adjustment wrench
P/N 520 000 126 Recommended
SC-10 II & III

Ball joint installer
P/N 529 000 012 Mandatory
REV, RT, DS 650, DS 450

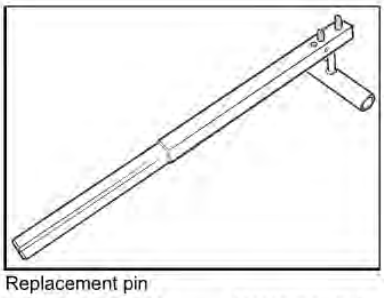
Suspension



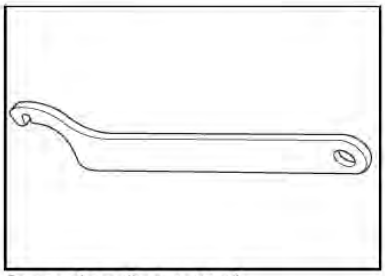
Spring installer
P/N 529 005 000 Recommended
Rear suspension torsion spring removal



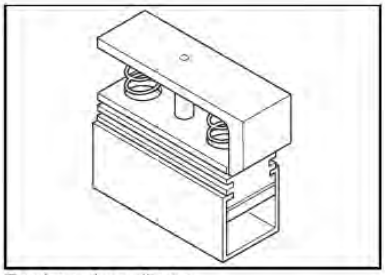
Track cleat remover
P/N 529 008 200 Recommended
1993 and older
Replacement pin 529008204



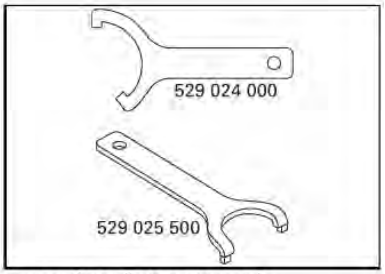
Replacement pin
P/N 529 008 204 Recommended
1993 and older
Remplacment part for tool 529008200.



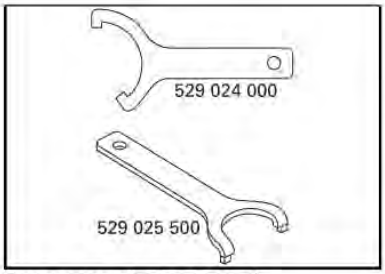
Suspension adjustment tool
P/N 529 017 100 Recommended
1992 and older C-7



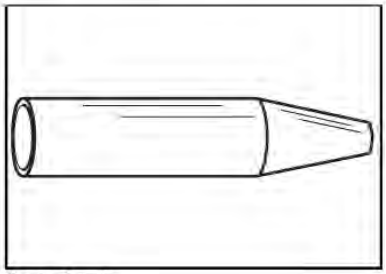
Track tension adjuster
P/N 529 021 500 Recommended
All except Élan



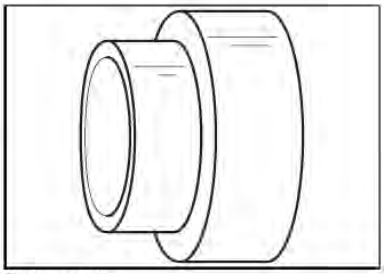
suspension adjustment wrench
P/N 529 024 000 Recommended
1998 and older models, with T/A shock
Included in kit 861743900



Suspension adjustmentwrench
P/N 529 025 500 Recommended
1998 and older models with T/A shock
Included in kit 861743900



Dome Guide
P/N 529 026 500 Recommended
C-36 HPG T/A Shock



Piston guide
P/N 529 026 600 Recommended
C-36 HPG T/A shock

Track cleat remover
P/N 529 028 700 Recommended
1994 and newer, except Élan & Tundra II

Shock preload adjustment wrench
P/N 529 032 900 Recommended

Suspension adjustment tool
P/N 529 034 100 Recommended
CK3 series

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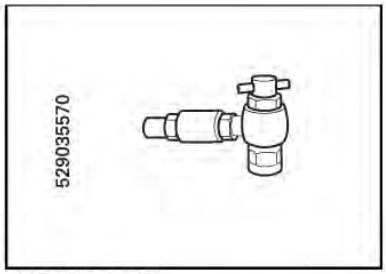
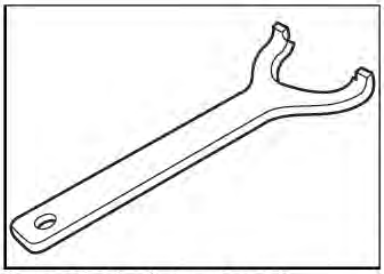
Suspension

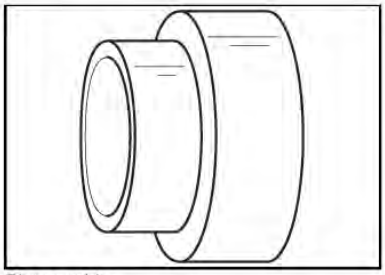
Spring compressor
P/N 529 035 504 Recommended
No longer sold, replaced by P/N 529 036 007.



Shock filling valve
P/N 529 035 570 Recommended
T/A shocks

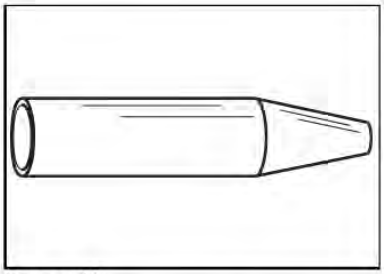


Kayaba shock adjustment wrench
P/N 529 035 582 Recommended
C-7 suspension



Piston guide
P/N 529 035 608 Recommended
C-46 HPG T/A shock

Shock wrench
P/N 529 035 727 Recommended
All T/A shocks



Dome guide
P/N 529 035 728 Recommended
C-46 HPG T/A shock

Shock retainer tool
P/N 529 035 769 Recommended
All HPG shock

Ball joint extractor
P/N 529 035 827 Mandatory
REV, RT

Ball joint remover support
P/N 529 035 873 Mandatory
REV, RT
Replaced by 529036121

Ball joint installer
P/N 529 035 874 Recommended
2003 REV series

Ball joint installer support
P/N 529 035 875 Mandatory
REV, RT, Outlander

Extension to torque ball joint
P/N 529 035 876 Mandatory
REV, RT

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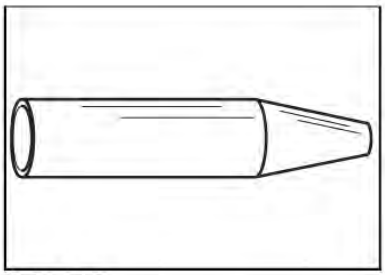
Suspension

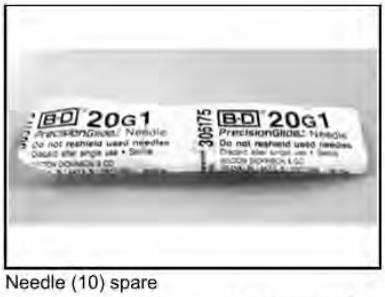
Floating piston puller
P/N 529 035 901 Recommended
HPG T/A shock with externa reservoir



Dome guide
P/N 529 035 902 Recommended
ZX X 440

Floating piston support
P/N 529 035 903 Recommended
ZX X 440

Floating piston puller
P/N 529 035 907 Recommended
MX Z X 440



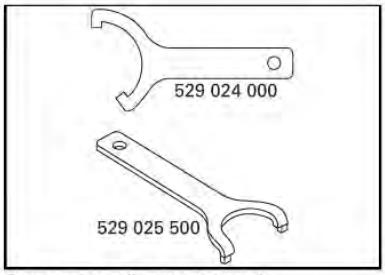
Needle (10) spare
P/N 529 035 930 Recommended
Used with 503190102

Ball joint lock
P/N 529 035 945 Recommended
REV, RT

Ball joint installer
P/N 529 035 975 Recommended
REV, RT, except 2003 REV

Spring Remover
P/N 529 036 007 Recommended
All models
To remove coil spring from shock.

Ball joint remover support
P/N 529 036 121 Recommended
REV, RT, Outlander, roadsters



Suspension adjustment wrench
P/N 861 743 900 Recommended
1998 and older models with T/A shocks
Includes 529024000 & 529025500

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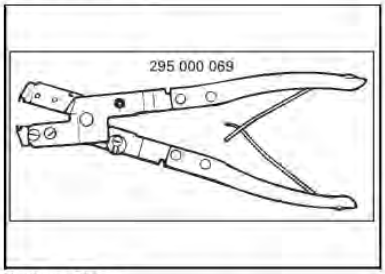
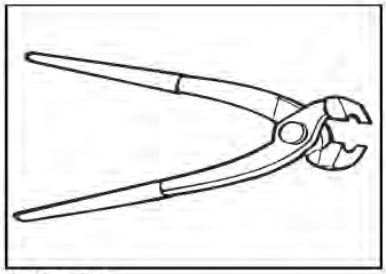
Hull / Body / Chassis

Template for hood drilling
P/N 529 034 400 Recommended
S series
To install gauges.

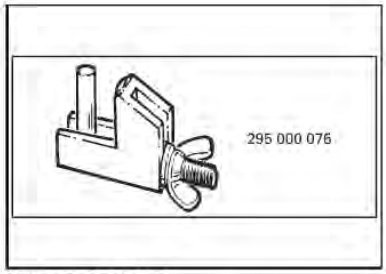
Various



Oetiker Pliers
P/N 295 000 069 Recommended
All models

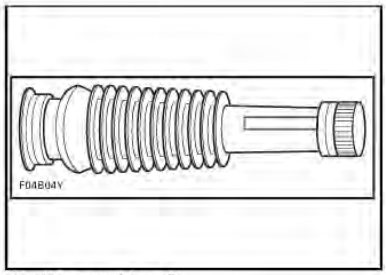


Oetiker pliers
P/N 295 000 070 Recommended
All models

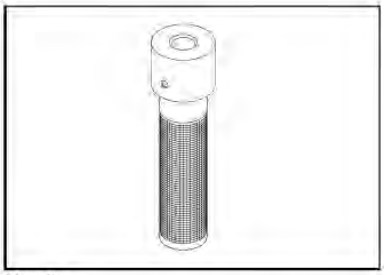


Small hose pincher
P/N 295 000 076 Mandatory
All models

6 mm insert pliers
P/N 295 000 162 Recommended
To install 6mm inserts on frame.

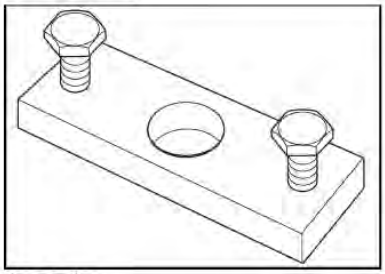


Flexible spout for oil
P/N 414 837 300 Recommended
All models



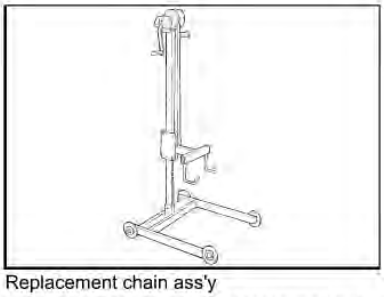
Handle
P/N 420 877 650 Recommended
All models
To be used with many pushers.

Various

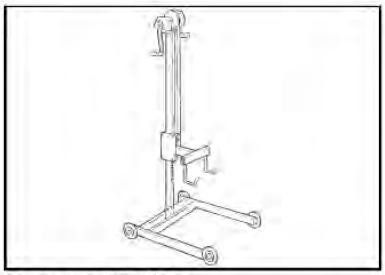


Cam puller
P/N 529 012 900 Recommended
Tundra II LT

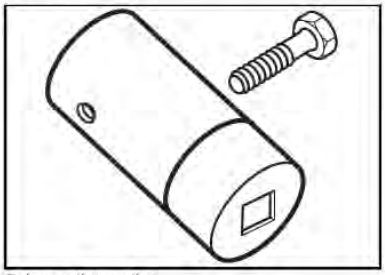
Snomobile rack
P/N 529 020 000 Recommended
All
No longer sold, replacement parts still available.



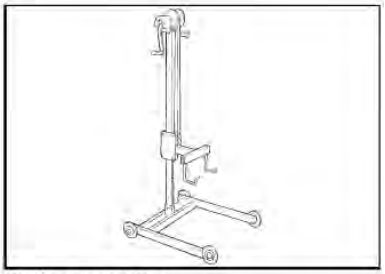
Replacement chain ass'y
P/N 529 020 400 Recommended
For jack 529020000.



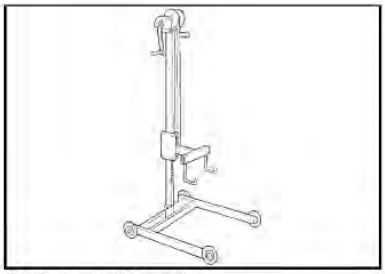
Replacement bushing
P/N 529 020 600 Recommended
For jack 529020000.



Drive pulley puller
P/N 529 023 100 Recommended
Elan



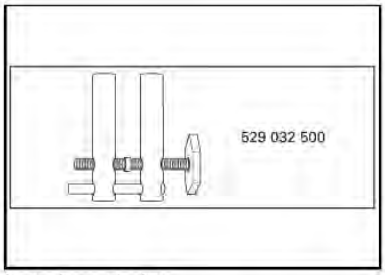
Replacement strap
P/N 529 026 200 Recommended
For jack 529020000



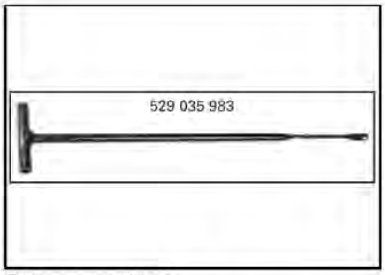
Replacement U bushing
P/N 529 027 703 Recommended
For jack 529020000

Protective mat
P/N 529 030 600 Recommended
All

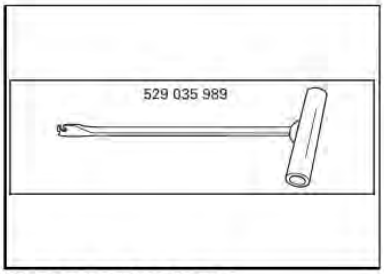
Supertitanium drill bit 3/16"
P/N 529 031 800 Recommended
To drill/remove many kinds of rivet.



Large hose pincher
P/N 529 032 500 Recommended
All models



Spring removal tool
P/N 529 035 983 Mandatory
All models



Spring removal tool (small)
P/N 529 035 989 Mandatory

35/38

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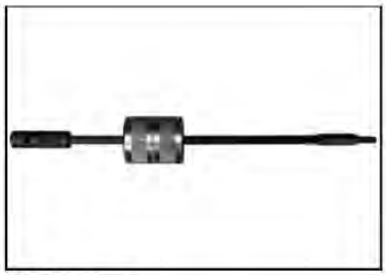
Various

Blind hole bearing puller set
P/N 529 036 117 Recommended
All models
Replaced by 529036056



Slide hammer
P/N Snap-on CJ125-6 Recommended
All
No sold by BRP

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Tool Part Numbers ... Page

These tools are mandatory

222007565	22	420876922	4	529020400	35	529031900	18
222082565	22	420876980	4	529020600	35	529032100	15
222983065	22	420877050	4	529020700	17	529032300	26
278001052	18	420877635	4	529020800	6	529032500	35
295000069	34	420877650	34	529021100	6	529032900	31
295000070	34	420877820	4	529021200	6	529033100	7
295000076	34	420940755	5	529021300	6	529033300	18
295000114	2	420976235	5	529021302	6	529033800	18
295000143	2	420976890	5	529021400	17	529034100	31
295000162	34	420977475	5	529021500	31	529034200	26
404112000	15	420977479	5	529021800	6	529034400	34
408201100	2	420977480	5	529022400	24	529034600	18
408803500	2	420977490	5	529022500	6	529035300	26
414012200	18	420977494	5	529023100	35	529035400	7
414104700	2	484300139	18	529023400	6	529035501	26
414348200	22	503190102	30	529024000	31	529035503	7
414837300	34	517234900	5	529024600	6	529035504	32
420267930	2	520000126	30	529024900	7	529035513	7
420276025	2	529000012	30	529025000	24	529035520	15
420277010	18	529002100	23	529025500	31	529035521	7
420277875	2	529002800	23	529025600	24	529035522	7
420277905	17	529005000	31	529026200	35	529035523	7
420476010	22	529005500	23	529026402	24	529035524	26
420476020	22	529006400	23	529026500	31	529035527	26
420840681	2	529006500	23	529026600	31	529035530	26
420841201	2	529007200	23	529026700	24	529035541	7
420876081	2	529007700	23	529026800	24	529035542	8
420876171	2	529007900	23	529026900	25	529035543	8
420876330	3	529008200	31	529027300	25	529035545	26
420876357	17	529008204	31	529027600	25	529035547	8
420876490	3	529008500	23	529027703	35	529035549	8
420876500	3	529008700	23	529028200	25	529035550	18
420876501	3	529010100	23	529028300	25	529035557	27
420876510	3	529010600	23	529028500	25	529035559	8
420876512	17	529010700	24	529028700	31	529035561	8
420876514	3	529010800	24	529028800	25	529035562	8
420876516	3	529010902	5	529029100	7	529035563	8
420876552	3	529011000	5	529030000	25	529035565	8
420876557	3	529011200	5	529030100	25	529035567	8
420876569	3	529011203	6	529030200	25	529035569	8
420876605	3	529012900	35	529030300	25	529035570	32
420876607	17	529014500	18	529030500	7	529035572	27
420876610	3	529015200	24	529030600	35	529035575	27
420876612	4	529016900	6	529030800	7	529035576	27
420876620	4	529017100	31	529030900	25	529035582	32
420876660	4	529017200	24	529031100	26	529035584	27
420876695	4	529018700	24	529031200	26	529035586	27
420876822	4	529018800	24	529031300	26	529035588	27
420876824	4	529018900	6	529031400	26	529035591	15
420876904	4	529020000	35	529031800	35	529035594	27

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These tools are mandatory

529035602 15
529035603 15
529035607 8
529035608 32
529035652 21
529035661 9
529035674 27
529035675 18
529035676 18
529035679 19
529035681 19
529035686 9
529035687 9
529035697 19
529035699 27
529035709 15
529035714 15
529035724 9
529035727 32
529035728 32
529035730 19
529035748 19
529035764 9
529035765 9
529035766 9
529035769 32
529035808 27
529035812 27
529035815 28
529035821 9
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529035823 17
529035826 28
529035827 32
529035828 19
529035829 9
529035830 9
529035831 28
529035832 28
529035835 15
529035836 15
529035837 15
529035838 15
529035839 9
529035868 19
529035869 19
529035873 32
529035874 32
529035875 32
529035876 32
529035878 19
529035880 10
529035891 16
529035894 28
529035896 19
529035897 30
529035899 16
529035900 10
529035901 33
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529035904 19
529035906 19
529035907 33
529035908 20
529035909 20
529035910 10
529035911 10
529035913 10
529035914 10
529035930 33
529035931 28
529035936 30
529035939 28
529035940 10
529035942 28
529035943 20
529035944 10
529035945 33
529035952 10
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529035973 12
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529035976 12
529035979 12
529035980 12
529035981 20
529035983 35
529035989 35
529035990 12
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529035993 20
529035997 20
529035998 12
529035999 12
529036000 12
529036001 12
529036002 12
529036003 12
529036004 12
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529036009 28
529036010 29
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529036012 29
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529036016 20
529036018 20
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529036022 13
529036023 16
529036028 13
529036029 13
529036031 13
529036032 13
529036033 13
529036034 13
529036035 29
529036038 21
529036042 21
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529036057 21
529036060 13
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529036065 29
529036066 29
529036067 29
529036108 22
529036110 29
529036111 29
529036112 29
529036117 36
529036118 16
529036121 33
529036122 29
529036127 30
529036128 13
529036129 14
529036130 14
529036131 14
529036132 14
529036136 16
529036137 16
529036138 14
590122400 16
710000851 20
860414200 30
861205900 22
861725700 30
861725800 14
861743900 33
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AMP 755430-2 21
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Snap-on RC 980 14
Snap-on TA362 14
Snap-on TT600-4 21
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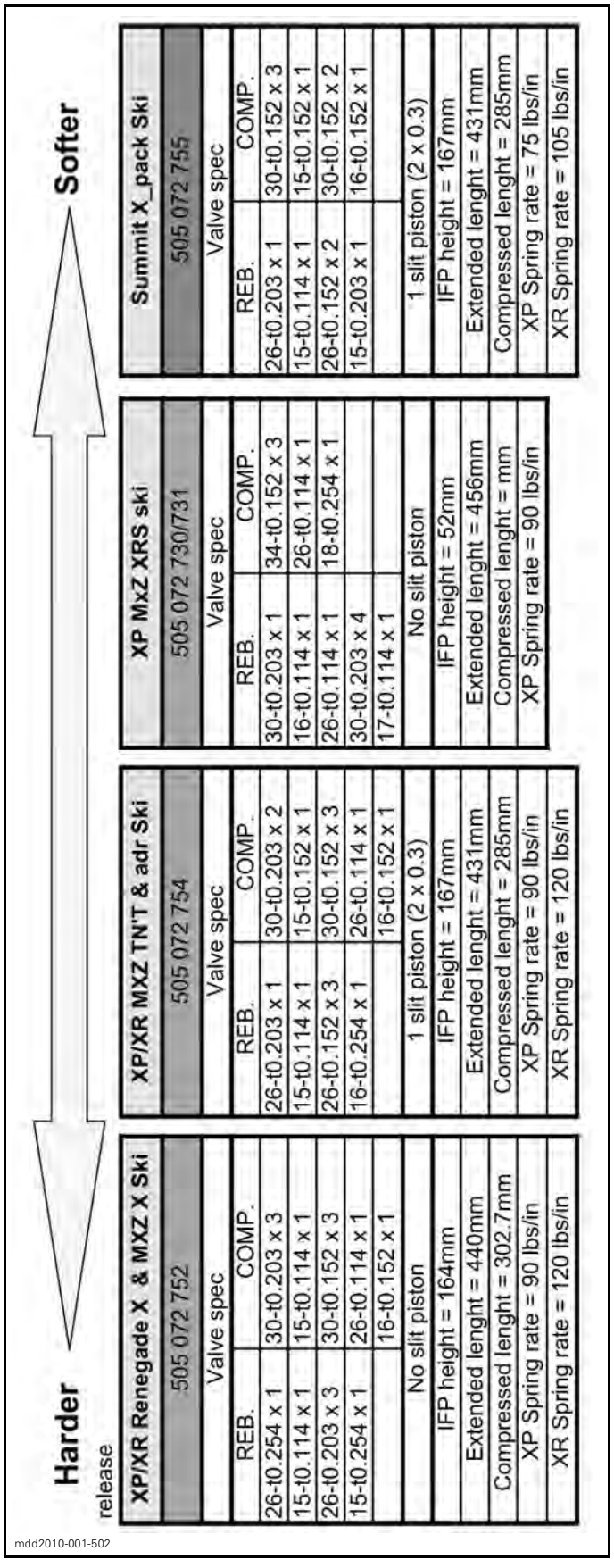
Specifications

Objective in this section you will find the most important specifications concerning this year line up.


Harder
release
Softer
XP/XR Renegade X & MXZ X Ski
505 072 752
Valve spec
REB.
COMP.
26-t0.254 x 1
30-t0.203 x 3
15-t0.114 x 1
15-t0.114 x 1
26-t0.203 x 3
30-t0.152 x 3
15-t0.254 x 1
26-t0.114 x 1
16-t0.152 x 1
No slit piston
IFP height = 164mm
Extended lenght = 440mm
Compressed lenght = 302.7mm
XP Spring rate = 90 lbs/in
XR Spring rate = 120 lbs/in
XP/XR MXZ TN'T & adr Ski
505 072 754
Valve spec
REB.
COMP.
26-t0.203 x 1
30-t0.203 x 2
15-t0.114 x 1
15-t0.152 x 1
26-t0.152 x 3
30-t0.152 x 3
16-t0.254 x 1
26-t0.114 x 1
16-t0.152 x 1
1 slit piston (2 x 0.3)
IFP height = 167mm
Extended lenght = 431mm
Compressed lenght = 285mm
XP Spring rate = 90 lbs/in
XR Spring rate = 120 lbs/in
XP MxZ XRS ski
505 072 730/731
Valve spec
REB.
COMP.
30-t0.203 x 1
34-t0.152 x 3
16-t0.114 x 1
26-t0.114 x 1
26-t0.114 x 1
18-t0.254 x 1
30-t0.203 x 4
17-t0.114 x 1
No slit piston
IFP height = 52mm
Extended lenght = 456mm
Compressed lenght = mm
XP Spring rate = 90 lbs/in
Summit X_pack Ski
505 072 755
Valve spec
REB.
COMP.
26-t0.203 x 1
30-t0.152 x 3
15-t0.114 x 1
15-t0.152 x 1
26-t0.152 x 2
30-t0.152 x 2
15-t0.203 x 1
16-t0.152 x 1
1 slit piston (2 x 0.3)
IFP height = 167mm
Extended lenght = 431mm
Compressed lenght = 285mm
XP Spring rate = 75 lbs/in
XR Spring rate = 105 lbs/in
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Harder ⟷ Softer

release

XR Renegade X_Centre	
503 191 797	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 2
15-t0.114 x 1	17-t0.152 x 1
26-t0.254 x 3	30-t0.152 x 10
16-t0.203 x 1	26-t0.114 x 1
	22-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = 119.5mm	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 180 lbs/in	

Summit X_pack Centre	
503 192 210	
Valve spec	
REB.	COMP.
26-t0.254 x 1	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 4
16-t0.203 x 1	26-t0.114 x 1
	20-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = 133mm	
Extended lenght = 366mm	
Compressed lenght = 260mm	
XP Spring rate = 215/275 lbs/in	
XR Spring rate = 319/325 lbs/in	

XP Renegade X Centre	
503 192 035	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
15-t0.114 x 1	17-t0.152 x 1
26-t0.203 x 3	30-t0.203 x 5
16-t0.203 x 1	26-t0.114 x 1
	22-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = 119.5	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 135 lbs/in	

MXZ X_Pack & TNT Centre	
503 191 791	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 2
15-t0.114 x 1	14-t0.152 x 1
26-t0.254 x 3	30-t0.152 x 6
16-t0.203 x 1	26-t0.114 x 1
	18-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = 119.5mm	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 110 lbs/in	

MXZ_XRS Centre	
503 192 170	
Valve spec	
REB.	COMP.
30-t0.254 x 1	34-t0.203 x 2
16-t0.114 x 1	22-t0.114 x 1
26-t0.114 x 1	34-t0.203 x 1
30-t0.203 x 3	28-t0.114 x 1
17-t0.114 x 1	26-t0.114 x 1
	18-t0.254 x 1
0.9mm hole piston	
IFP height = 52mm	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 135 lbs/in	

Summit X-RS_pack Centre	
503 192 285	
Valve spec	
REB.	COMP.
26-t0.254 x 1	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 5
16-t0.203 x 1	28-t0.114 x 1
	24-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = 119.5mm	
Extended lenght = 366mm	
Compressed lenght = 260mm	
Spring rate = 215/275 lbs/in	

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XP-XR MXZ X option soft	
503 192 024	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 2
16-t0.114 x 1	
26-t0.254 x 5	15-t0.152 x 1
16-t0.203 x 1	30-t0.203 x 1
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 119.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

XP-XR MXZ X Rear option soft	
503192024 (R001)	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 3
16-t0.114 x 1	30-t0.152 x 1
26-t0.254 x 5	15-t0.152 x 1
16-t0.203 x 1	30-t0.203 x 2
	30-t0.152 x 1
	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 119.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

XP-XR MXZ X option hard	
503 192 024	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
16-t0.114 x 1	
26-t0.254 x 5	17-t0.152 x 1
16-t0.203 x 1	30-t0.203 x 1
	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 119.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

Ajouté ressort avant 90lbs/po
505072230 jaune
505072537 noir

XP & XR MXZ TNT option soft	
503 192 023	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 3
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 2
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = 171.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

XP & XR MXZ TNT Rear	
503 192 023	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 7
16-t0.114 x 1	17-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 4
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = 171.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

XP & XR Ren X option soft	
503 192 025	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 4
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 3
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 54.5mm	
Extended lenght = 551mm	
Compressed lenght = 413mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

XP & XR Ren X option hard	
503 192 025	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.254 x 7
16-t0.114 x 1	18-t0.152 x 1
26-t0.254 x 4	30-t0.254 x 6
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 54.5mm	
Extended lenght = 551mm	
Compressed lenght = 413mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

front spring rate 90 lbs
505072230 jaune

front spring rate 90 lbs
505072537 noir

mdd2010-001-504

release 10-3-08

XP & XR Renegade X Rear	
503 192 205	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.254 x 5
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.254 x 4
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 54.5mm	
Extended lenght = 551mm	
Compressed lenght = 413mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

release

XP-XR MXZ X Rear!	
503 192 204	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 3
16-t0.114 x 1	30-t0.152 x 1
26-t0.254 x 5	15-t0.152 x 1
16-t0.203 x 1	30-t0.203 x 2
	30-t0.152 x 1
	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 54.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

release

XP & XR MXZ TNT Rear	
503 192 023	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 7
16-t0.114 x 1	17-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 4
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = 171.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
XR Spring rate = 1.33-100deg	

XP MXZ TNT Rear	
503 192 120	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 4
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 2
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = 171.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.28-95deg	
release 10-3-08	

MxZ XRS rear	
503 192 203	
Valve spec	
REB.	COMP.
30-t0.254 x 1	34-t0.203 x 6
16-t0.114 x 1	22-t0.114 x 1
30-t0.203 x 5	34-t0.203 x 2
17-t0.305 x 1	28-t0.114 x 1
	26-t0.114 x 1
	18-t0.254 x 1
0.9mm hole piston	
IFP height = 52mm	
Extended lenght = 456mm	
Compressed lenght = mm	
Spring rate = 1.33-100deg	

Summit X_pack Rear	
503 192 208	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
15-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 4
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = 171.5mm	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.27-80deg	
XR Spring rate = 1.35-80deg	

XP & XR Ren EUR X Rear	
503 192 298	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.254 x 7
16-t0.114 x 1	18-t0.152 x 1
26-t0.254 x 4	30-t0.254 x 6
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	
SPRING 11501-14387	
IFP height = 54.5mm	

XP-XR MXZ X Eur Rear!	
503 192 297	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
16-t0.114 x 1	
26-t0.254 x 5	17-t0.152 x 1
16-t0.203 x 1	30-t0.203 x 4
	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
BASE VALVE SPEC	
18-t0.305 x 2 ; 15-t0.305 x 3	

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Rear Non T/A

XP Renegade adr. Rear	
503 192 037	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 5
15-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 3	30-t0.203 x 3
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 551mm	
Compressed lenght = 413mm	
Spring rate = 1.28-95deg	

XR Renegade adr. Rear	
503 192 026	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 6
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 551mm	
Compressed lenght = 413mm	
Spring rate = 1.33-100deg	

Summit Everest Rear	
503 192 207	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
15-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 4
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
XP Spring rate = 1.27-80deg	
XR Spring rate = 1.35-80deg	

XR GTX LE Rear VR	
503 191 853	
Valve spec VR	
REB.	COMP.
26-t0.254 x 1	30-t0.254 x 1
15-t0.114 x 1	30-t0.203 x 1
26-t0.254 x 5	19-t0.152 x 1
16-t0.254 x 1	30-t0.203 x 3
	17-t0.254 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 551mm	
Compressed lenght = 413mm	
Spring rate = 1.78-100deg	

MXZ Adrenaline Rear R003	
503 192 075	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 4
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 2
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 437.5mm	
Compressed lenght = 288.5mm	
Spring rate = 1.28-95deg	

Tundra LT rear	
503 192 294	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.152 x 3
16-t0.114 x 1	16-t0.152 x 1
26-t0.254 x 3	30-t0.203 x 1
16-t0.203 x 1	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 551mm	
Compressed lenght = 413mm	
Spring rate = 1.35-80deg	

Tundra 137 rear	
503 192 159	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.152 x 2
16-t0.114 x 1	16-t0.152 x 1
26-t0.254 x 3	30-t0.203 x 1
16-t0.203 x 1	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght =477mm	
Compressed lenght = 335mm	
Spring rate = 1.27-80deg	

GTX 550 rear	
503 192 295	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.152 x 4
16-t0.114 x 1	15-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 1
16-t0.203 x 1	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght =477mm	
Compressed lenght = 335mm	
Spring rate = 1.66-80deg	

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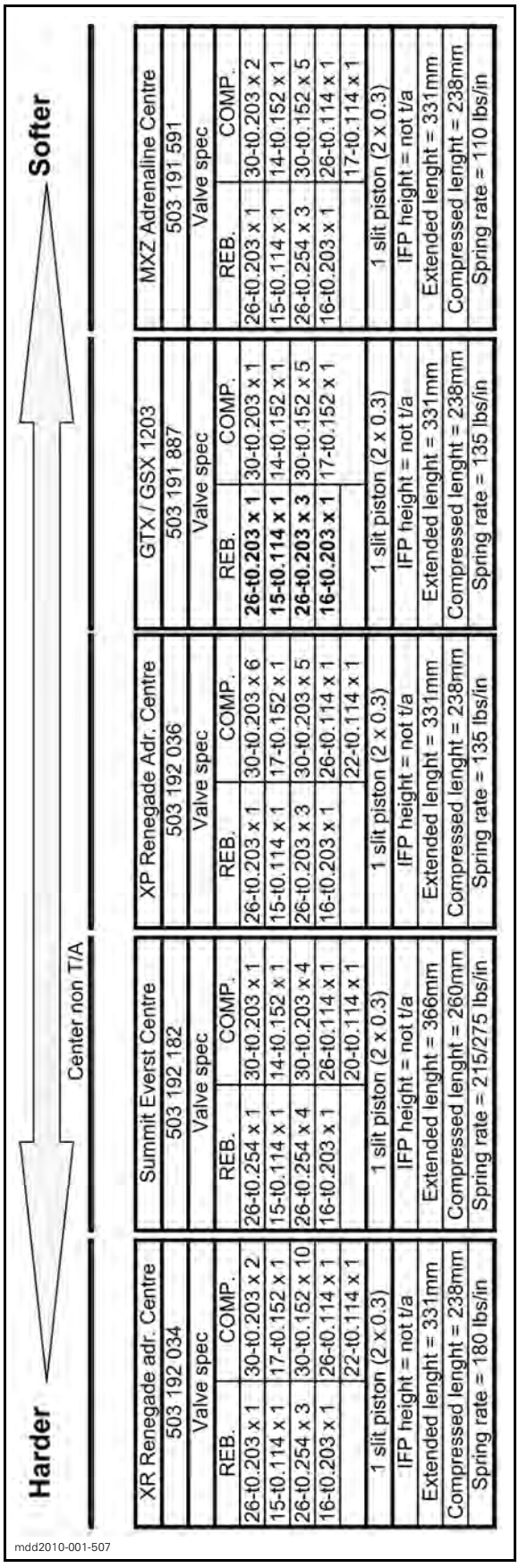


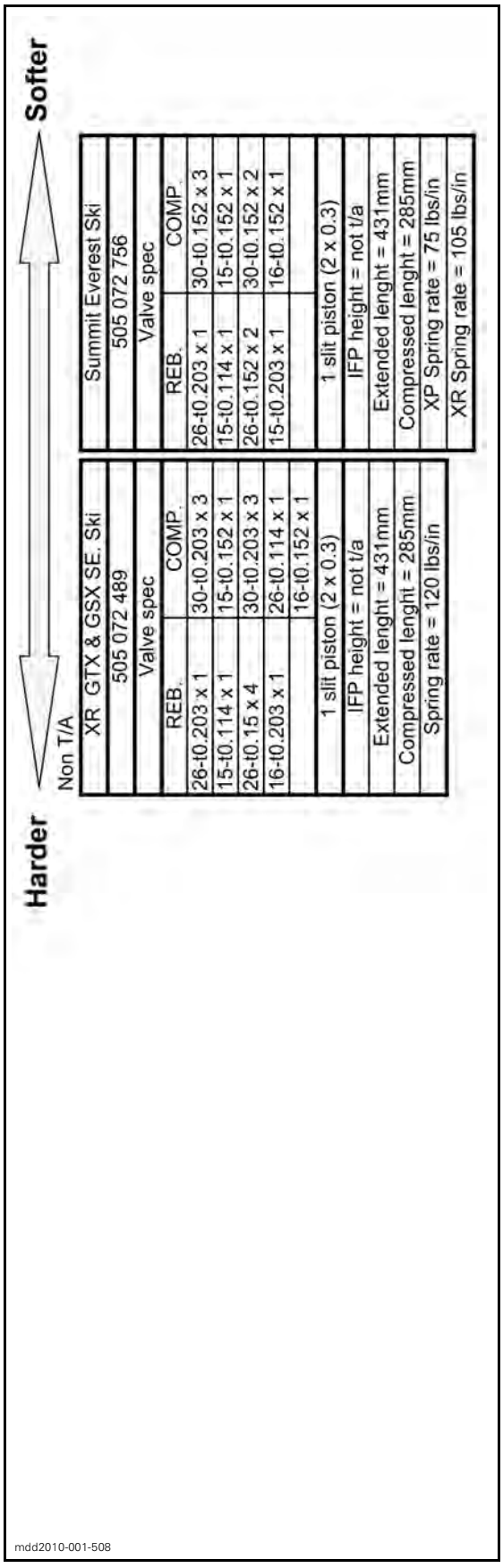
XR Renegade adr. Centre	
503 192 034	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 2
15-t0.114 x 1	17-t0.152 x 1
26-t0.254 x 3	30-t0.152 x 10
16-t0.203 x 1	26-t0.114 x 1
	22-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 180 lbs/in	

Summit Everst Centre	
503 192 182	
Valve spec	
REB.	COMP.
26-t0.254 x 1	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 4
16-t0.203 x 1	26-t0.114 x 1
	20-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 366mm	
Compressed lenght = 260mm	
Spring rate = 215/275 lbs/in	

XP Renegade Adr. Centre	
503 192 036	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 6
15-t0.114 x 1	17-t0.152 x 1
26-t0.203 x 3	30-t0.203 x 5
16-t0.203 x 1	26-t0.114 x 1
	22-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 135 lbs/in	

GTX / GSX 1203	
503 191 887	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1
26-t0.203 x 3	30-t0.152 x 5
16-t0.203 x 1	17-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 135 lbs/in	

MXZ Adrenaline Centre	
503 191 591	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 2
15-t0.114 x 1	14-t0.152 x 1
26-t0.254 x 3	30-t0.152 x 5
16-t0.203 x 1	26-t0.114 x 1
	17-t0.114 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 331mm	
Compressed lenght = 238mm	
Spring rate = 110 lbs/in	



XR GTX & GSX SE. Ski	
505 072 489	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.203 x 3
15-t0.114 x 1	15-t0.152 x 1
26-t0.15 x 4	30-t0.203 x 3
16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 431mm	
Compressed lenght = 285mm	
Spring rate = 120 lbs/in	

Summit Everest Ski	
505 072 756	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.152 x 3
15-t0.114 x 1	15-t0.152 x 1
26-t0.152 x 2	30-t0.152 x 2
15-t0.203 x 1	16-t0.152 x 1
1 slit piston (2 x 0.3)	
IFP height = not t/a	
Extended lenght = 431mm	
Compressed lenght = 285mm	
XP Spring rate = 75 lbs/in	
XR Spring rate = 105 lbs/in	

CARBURETOR CALIBRATION
ROTAX PRODUCTION 2009
BOMBARDIER MODELS 2010

Mikuni

ENG	PF	MODEL NAME	TYPE	DPM JET VENT	DPM JET LEAN	MIKUNI #	BBD #	NEEDLE	N-JET	B.H. ϕ	C.A.	V.S. ϕ	S.J. ϕ	IDLE ±0.1	M.J.	PW.J.	P.J.	A.S. Turns	P.S.	FLOAT LEVEL ± 1	RPM ±200
552	XP XU	Tundra 550 R Tundra 550 Sport R Tundra LT 550 R MXZ 550 R TNT Renegade 550 Sport R GSX 550 R Sport GTX 550 R Sport				MAG VM30-216 PTO VM30-217 MAG: GREEN dot PTO: Blue dot	403 138 801 403 138 810	6BFY46-3 6BFY46-3	P-8 (159) P-8 (159)	N/A N/A	2.5 2.5	1.2(2) 1.2(2)	1.3 1.3	1.6 1.6	190 200	N/A N/A	35 35	1.25 1.25	N/A N/A	23.9 23.9	1650 1650
552	Yeti2	Skandic 550 WT Fan Skandic 550 SUV Fan				VM30-215	605 619 004	6BFY46-2	P-8 (159)	N/A	2.0	1.2(2)	1.0	1.5	190(5)	N/A	40	2.5	N/A	23.9	1650
593	XP	MXZ 600 R Sport MXZ 600 R TNT GSX 600 R Sport GTX 600 R Sport	HTD			TM40-B409	403 138 809	9CEY2-58-2	P-0M(4)	1.6	2.0	1.5(3)	1.1	1.5	420(5)	N/A	17.5	N/A	1.5	N/A	1600
593	XP	SUMMIT 600 R Sport	HTD			TM40-B409	403 138 809	9CEY2-58-2	P-0M(4)	1.6	2	1.5(3)	1.1	1.5	420(5)	N/A	17.5	N/A	1.5	N/A	1600
593RS	XP	MXZ x 600 Racing				MAG TMX38-__ PTO TMX3e-__ MAG: Green dot PTO: Blue dot	403 136 __ 403 136 __	6FDY1-57-2 6FDY1-57-2	P-6 P-6	N/A N/A	4.0 4.0	1.5(3) 1.5(3)	N/A N/A	2.5 2.5	270 280	160 160	55 55	[3.0] [3.0]	N/A N/A	N/A N/A	1600 1600
797	XP	MXZ 800 R Adrenaline MXZ 800 R X MXZ 800 R X-RS Renegade 800 R Adrenaline Renegade 800 R X Renegade 800 R Backcountry X	TPS.DPM.HTD	1.2	2.0	TM40-397	403 138 805	9EGI04-58	P-0M(4)	1.6	2.0	1.5(3)	1.1	1.6	480(5)	N/A	17.5	N/A	1.5	N/A	1600

(1) Without primary choke
(2) With straight float arm
(3) Viton type
(4) Press fit type nickel plated
(5) DPM vent hose or HAC vent hose should be connected on the air box.
(6) Needle with 3 grooves (nominal plus 2 on richer side)
[x.xx] Fine thread (20°, 0.5mm pitch)

Final release: idle, main jet, power jet, air jet, pilot jet, air screw, pilot screw, float level.

Color identification : MAG= Green, PTO= Blue.
Note: No color if carburetors are identical

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mdd2010-001-510_1

BRP SKI-DOO - 2010 MODELS / MODELES 2010

Transmission system calibration

			Drive pulley / Poulie motrice										Driven pulley / Poulie menée					Carter				
Model Modèle	Engine Moteur	Platform	Model Modèle	Taper Cone	Governor cup / Cuvette de régulateur	Spring Ressort	Pin or weight / Pine ou pesée	Ramp or bloc / Rampe ou bloc	Pos. calib or / ou capsule	Engagement ±100 RPM	Max. speed / Régime max. ±100 RPM	Belt Courroie	Model Modèle	Ressort / Spring Color	Ressort / Spring Force (N)	Preload new / after break-in period Tension neuf / après rodage (±0.7 kg)	Cam Came (°) / Type	Sprocket top / Pignon haut	Sprocket bottom / Pignon bas	Chaine / Chain Maille/Link	Chaine / Chain width	Sprocket Barbotin
TUNDRA 550 Std 137x15x1.25	552	XU	TRA 3	1 : 7.5	Cushion drive	Red / Yellow	Solid - Short	600	3	2400	6800	417 300 367	LPV-VSA	Brown	508 / 803	0,0	44	19	45	102	13	8 teeth 2.86
TUNDRA 550 Sport 137x16x1.25	552	XU	TRA 3	1 : 7.5	Cushion drive	Red / Yellow	Solid - Short	600	3	2400	6800	417 300 367	LPV-VSA	Brown	508 / 803	0,0	44	19	45	102	13	8 teeth 2.86
TUNDRA 550 LT 154x16x1.5	552	XU	TRA 3	1 : 7.5	Cushion drive	Red / Yellow	Solid - Short	600	3	2400	6800	417 300 367	LPV-VSA	Brown	508 / 803	0,0	44	19	45	102	13	8 teeth 2.86
TUNDRA 550 LT 154x16x1.5 Eur	552	XU	TRA 3	1 : 7.5	Cushion drive	Red / Yellow	Solid - Short	600	3	2400	6800	417 300 367	LPV-VSA	Brown	508 / 803	0.0	44	19	45	102	13	8 teeth 2.86
MXZ 550 TNT 120 x 15 x 1.25	552	XP	TRA 3	1 : 7.5	Cushion drive	Blue / Orange	Hollow - Short	412	3	3900	6800	417 300 367	LPV-VSA	Brown	508 / 803	0.0	44	21	45	102	13	8 teeth 2.86
Renegade 550 137 X 15 X 1.25	552	XP	TRA 3	1 : 7.5	Cushion drive	Yellow / Yellow	Solid -Short	600	3	3000	6800	417 300 367	LPV-VSA	Brown	508 / 803	0,0	44	21	45	102	13	8 teeth 2.86
GSX FAN Sport 120 x 15 x 1"	552	XP	TRA 3	1 : 7.5	Cushion drive	Yellow / Yellow	Solid -Short	600	3	3000	6800	417 300 367	LPV-VSA	Brown	508 / 803	0,0	44	21	45	102	13	8 teeth 2.86
GTX FAN Sport 137 x 15 x 1"	552	XP	TRA 3	1 : 7.5	Cushion drive	Yellow / Yellow	Solid - Short	600	3	3000	6800	417 300 367	LPV-VSA	Brown	508 / 803	0.0	44	21	45	102	13	8 teeth 2.86
GTX FAN Sport 137 x 16 x 1.25"	**552**	**XP**	**TRA 3**	**1 : 7.5**	**Cushion drive**	**Yellow / Yellow**	**Solid - Short**	**600**	**3**	**3000**	**6800**	**417 300 367**	**LPV-VSA**	**Brown**	**508 / 803**	**0.0**	**44**	**19**	**45**	**102**	**13**	**8 teeth 2.86**
GTX FAN Sport 137 x 16 x 1.25" Eur	552	XP	TRA 3	1 : 7.5	Cushion drive	Yellow / Yellow	Solid - Short	600	3	3000	6800	417 300 367	LPV-VSA	Brown	508 / 803	0.0	44	19	45	102	13	8 teeth 2.86
Skandic WT,SUV 550	552	Yeti II	TRA 3	1:10	Cushion drive	Yellow / Green	Solid - Short	600	3	2800	6900	605 348 425	Team 6K	or/blu/blu		8.9 / 8.0	40-30	1-2,93	2- 2,04	N/A	N/A	8 teeth 2.52
MXZ 600 Sport, TNT	593	XP	TRA 3	1:7.5	Cushion drive	Violet / Violet	Solid - Short	412	3	3800	8100	417 300 197	X-Type	Black	700N	0,0	42 - XP	25	45	104	13	8 teeth 2.86
Summit 600 Sport, 146 x 15 x 2.0	593	XP	TRA 3	1:7.5	Cushion drive	Blue / Pink	Solid - Short	417	3	3400	8100	417 300 197	X-Type	Black	700N	0.0	43-47 - XP	19	49	104	13	8 teeth 2.86
GSX 600 Sport	593	XP	TRA 3	1:7.5	Cushion drive	Blue / Violet	Solid - Short	412	3	3400	8100	417 300 197	X-Type	Black	700N	0.0	42 - XP	24	45	104	13	8 teeth 2.86
GTX 600 Sport 137	593	XP	TRA 2	1:7.5	Cushion drive	Blue / Violet	Solid - Short	412	3	3400	8100	417 300 197	X-Type	Black	700N	0.0	42 - XP	23	45	104	13	8 teeth 2.86
Skandic WT 600	593	Yeti II	TRA 3	1:7.5	Cushion drive	Yellow / Red	Solid - Long	600	3	2800	7100	605 348 425	Team 8K	or/blu/blu		8.4 / 7.5	35-30	1-2,82	2- 1,70	N/A	N/A	8 teeth 2.52
MXZ 600HO E-Tec Adrenaline, X, X-RS	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	3400	8100	417 300 383	X-Type	Green	800N	0.0	48 - XP	25	45	104	13	8 teeth 2.86
Renegade 600HO E-Tec Adrenaline, X, 15 x 1.25 t	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	3400	8100	417 300 383	X-Type	Green	800N	0,0	48 - XP	23	45	104	13	8 teeth 2.86
Renegade 600HO E-Tec Adrenaline, 16 x 1.25 t Eur	600HO E-T	XP	TRA 2	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	3400	8100	417 300 383	X-Type	Green	800N	0.0	48 - XP	21	45	102	13	8 teeth 2.86
Renegade 600HO E-Tec X, 16 x 1.25 t Eur	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	3400	8100	417 300 383	X-Type	Green	800N	0.0	48 - XP	21	45	102	13	8 teeth 2.86
Renegade 600HO E-Tec Backcountry 16 x 1.75 t	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	3400	8100	417 300 383	X-Type	Green	800N	0.0	48 - XP	21	49	106	13	8 teeth 2.86
GSX 600HO E-Tec LE	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Yellow / Green	Solid - Short	412	3	3400	8100	417 300 383	X-Type	Green	800N	0.0	48 - XP	25	45	104	13	8 teeth 2.86
Grand-Touring 600HO E-Tec LE, 137 x 15 x1"	600HO E-T	XR	TRA 3	1:7.5	Cushion drive	Red / Green	Solid - Short	414	3	3400	8100	417 300 383	X-Type	Green	800N	0.0	48 - XP	23	45	104	13	8 teeth 2.86
Summit 600HO E-Tec Everest, 146 x 16 x 2.25	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Violet / Green	Threaded short + 16mm	440	3	4000	8100	417 300 383	X-Type	Black	700N	0.0	41-45 -XP	19	49	104	13	8 teeth 2.86
Summit 600HO E-Tec Everest, 146 x 16 x 2.25Eur	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	4000	8100	417 300 383	X-Type	Black	700N	0,0	41-45 -XP	19	49	104	13	8 teeth 2.86
Summit 600HO E-Tec X, 154 x 16 x 2.25	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Violet / Green	Threaded short + 16mm	440	3	4000	8100	417 300 383	X-Type	Black	700N	0,0	41-45 -XP	19	49	104	13	8 teeth 2.86
Summit 600HO E-Tec X, 154 x 16 x 2.25 Eur	600HO E-T	XP	TRA 3	1:7.5	Cushion drive	Blue / Green	Solid - Short	412	3	4000	8100	417 300 383	X-Type	Black	700N	0.0	41-45 -XP	19	49	104	13	8 teeth 2.86
Expedition, Expedition SE 600 Sdi	600HO Sdi	XU	TRA 3	1:7.5	Cushion drive	Yellow / Red	Solid - Long	600	2	3000	8100	417 300 383	X-Type	White		8.3-7.6	40 - XP	1-3,23	2- 1,98	N/A	N/A	9 teeth 2.52
MXZ X 600RS	600 RS	XP	TRA 3-light	1:7.5	Light-cushion dr.	417 222 958 grey/grey 240-370	Threaded long + 25mm	443	5	5700	8400	417 300 288	Team 417 127 064	black/white	180-260	0.0	64-44-40	23 Steel	49 BRP	106	13	8 teeth 2.86"

BRP SKI-DOO - 2010 MODELS / MODELES 2010

Transmission system calibration

Model / Modèle	Engine / Moteur	Platform	Drive pulley / Poulie motrice								Driven pulley / Poulie menée					Carter				
			Model / Modèle	Taper / Cone	Governor cup / Cuvette de régulateur	Spring / Ressort	Pin or weight / Pige ou poids	Ramp or block / Rampe ou bloc	Pos. calib. pin / Ou capsule	Engagement ±100 RPM	Max. speed / Régime max. ±100 RPM	Belt / Courroie	Model / Modèle	Ressort / Spring Color / Couleur	Force (N)	Preload new / after break-in period Tension neuf / après rodage (±0.7 kg)	Cam / Came (*) / Type	Sprocket top / Pignon haut	Sprocket bottom / Pignon bas	Chains / Chaine Maillet/Link	width
MXZ 800R X (MZAB00)	800R1	XP	TRA 7	1:7.5	Cushion drive	Blue / Green	Solid - Long	414	3	3600	8150	417 300 391	X-Type	Green	800N	0.0	47-44 - XP	27	45	106	13
Renegade 600R X (BAAA00) 15 x 1.25 t	600R1	XP	TRA 7	1:7.5	Cushion drive	Blue / Green	Solid - Long	414	3	3600	8150	417 300 391	X-Type	Green	800N	0.0	44-42 - XP	25	45	104	13
Renegade 600R X (CAAA00)154 x 1.75 t	600R1	XP	TRA 7	1:7.5	Cushion drive	Blue / Violet	Threaded long + 12mm	441	1	3600	8150	417 300 391	X-Type	Violet	1000N	0.0	43-47 - XP	21	45	102	13
MXZ 800R Adrenaline, X, X-RS	800R	XP	TRA 7	1:7.5	Cushion drive	Violet / Blue	Solid - Long	414	3	3800	8150	417 300 383	X-Type	Green	800N	0.0	47-44 - XP	27	45	106	13
MXZ 800R X-RS 1.25 Eur.	800R	XP	TRA 7	1:7.5	Cushion drive	Violet / Blue	Solid - Long	414	3	3800	8150	417 300 383	X-Type	Green	800N	0.0	47-44 - XP	25	45	104	13
Renegade 600R Adrenaline, X, 15 x 1.25 t	800R	XP	TRA 7	1:7.5	Cushion drive	Violet / Blue	Solid - Long	414	3	3800	8150	417 300 377	X-Type	Green	800N	0.0	44-42 - XP	25	45	104	13
Renegade 800R BCountry, BCountry X 16 x 1.75 t	800R	XP	TRA 7	1:7.5	Cushion drive	Violet / Blue	Solid - Long	413	3	3800	8150	417 300 377	X-Type	Green	800N	0.0	44-42 - XP	21	45	102	13
Renegade 800R Backcountry X 16 x 1.75 Eur	800R	XP	TRA 7	1:7.5	Cushion drive	Violet / Blue	Solid - Long	413	3	3800	8150	417 300 377	X-Type	Green	800N	0.0	44-42 - XP	21	45	102	13
SUMMIT 800R Everest, X, 146 x 2.25	800R	XP	TRA 7	1:7.5	Cushion drive	Green / Violet	Threaded long + 12mm	441	1	3800	8150	417 300 377	X-Type	Violet	1000N	0.0	43-47 - XP	21	45	102	13
SUMMIT 800R Everest, Sea Level, 146-154	800R	XP	TRA 7	1:7.5	Cushion drive	Blue / Violet	Solid - Long	413	3	3800	8150	417 300 377	X-Type	Violet	1000N	0.0	43-47 - XP	21	45	102	13
SUMMIT 800R Everest, X, HillClimb, 154 x 2.25	800R	XP	TRA 7	1:7.5	Cushion drive	Green / Violet	Threaded long + 12mm	441	1	3800	8150	417 300 377	X-Type	Violet	1000N	0.0	43-47 - XP	19	45	102	13
SUMMIT 800R HillClimb, 154 x 2.25 Eur	800R	XP	TRA 7	1:7.5	Cushion drive	Blue / Violet	Solid - Long	413	3	3800	8150	417 300 377	X-Type	Violet	1000N	0.0	43-47 - XP	21	45	102	13
SUMMIT 800R X, 163 X 2.25 Eur	800R	XP	TRA 7	1:7.5	Cushion drive	Blue / Violet	Solid - Long	413	3	3800	8150	417 300 377	X-Type	Violet	1000N	0.0	43-47 - XP	21	49	106	13
SUMMIT 800R Everest, X, 163 X 2.25	800R	XP	TRA 7	1:7.5	Cushion drive	Green / Violet	Threaded long + 12mm	441	1	3800	8150	417 300 377	X-Type	Violet	1000N	0.0	43-47 - XP	21	49	106	13
Skandic V-800 SWT 159x24x1.25	810	Yeti II	TRA 4 LD	1:7.5	Standard	Red / Red	Solid - Long	514	3	2500	7250	605 348 425	Team 6K	origo/gol		8.8 / 7.7	40-30	1-3,8	2-2,29	N/A	N/A
MXZ 1200 TNT, Adrenaline, X	1203	XR	TRA 4 LD	1:7.5	Standard	Yellow / Orange	Solid - Long	617	3	2500	7800	417 300 383	X-Type	Pink		8.3-7.5	47-40	24	43	104	13
Renegade 1200 Adrenaline, X, 15x 1.25	1203	XR	TRA 4 LD	1:7.5	Standard	Yellow / Orange	Solid - Long	617	3	2500	7800	417 300 383	X-Type	Pink		8.3-7.5	47-40	24	45	104	13
Renegade 1200 X, 16 x 1.75 Eur	1203	XR	TRA 4 LD	1:7.5	Standard	Yellow / Orange	Solid - Long	617	3	2500	7800	417 300 383	X-Type	Pink		8.3-7.5	47-40	24	45	104	13
GSX 1200 LE	1203	XR	TRA 4 LD	1:7.5	Standard	Yellow / Orange	Solid - Long	617	3	2500	7800	417 300 383	X-Type	Pink		8.3-7.5	47-40	24	43	104	13
G Touring LE, SE GSX SE 16x1.0x137*	1203	XR	TRA 4 LD	1:7.5	Standard	Yellow / Orange	Solid - Long	617	3	2500	7800	417 300 383	X-Type	Pink		8.3-7.5	47-40	24	45	104	13
Grand Touring 1200 SE 16x1.25 Eur.	1203	XR	TRA 4 LD	1:7.5	Standard	Yellow / Orange	Solid - Long	617	3	2500	7800	417 300 383	X-Type	Pink		8.3-7.5	47-40	24	45	104	13
Expedition, Expedition SE 1200 20 x 154 x 1.25	1203	XU	TRA 4 LD	1:7.5	Standard	Red / Orange	Solid - Long	617	2	2500	7800	417 300 377	X-Type	Beige		8.3-7.5	44-40	1-3,23	2-1,98	N/A	N/A

mdd2010-001-510_2

XP chain and sprocket cross reference chart
Tableau de référence - chaînes et pignons XP

XP Gear Ratio/ *Rapport d'engrenage XP*

Ratio *Rapport*	Sprocket *Pignons*	Gear *Engrenage*	Chain Length *Longueur de la chaîne*
2,25	20	45	102
2,24	21	47	104
2,14	21	45	102
2,14	22	47	104
2,13	23	49	106
2,04	23	47	104
2,04	24	49	106
1,96	25	49	106
1,95	22	43	102
1,88	26	49	108
1,88	25	47	106
1,88	24	45	104
1,87	23	43	102
1,81	27	49	108
1,81	26	47	106
1,8	25	45	104
1,75	28	49	108
1,74	27	47	106
1,69	29	49	108
1,68	28	47	108
1,67	27	45	106
1,65	26	43	104
1,62	29	47	108
1,61	28	45	106
1,59	27	43	104
1,55	29	45	106

mdd2008-002-520

SKI-DOO® TRACK EXCHANGE FORM

Date:_____

Dealer Number: _____ Dealer Name: _____

Contact Person _____

Telephone: _____Fax: _____

Unit Information

Model Number:_____ Serial Number: _____

.....

To be completed by dealer

- ❑ US
- ❑ CAN

Part # Ordered: _____ Invoice #: _____

Serial # Ordered: _____ Date Installed:_____

Part # Returned:_____ Serial # Returned:_____

.....

To be completed by BRP

Check list:

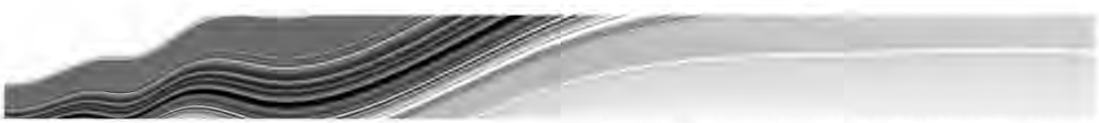
- ❑ ZGV3 / Track Serial Number
- ❑ "PO" Date Box
- ❑ VA01 / "Condition Type" / "HB00"
- ❑ VA01 / Condition / "Rate" / -200

Return Authorization number: _____

Authorized by: _____ Date Approved:_____

.....

Fax completed form to PAC Analyst to receive your authorization number
US: 1-800-366-3880 / CAN: 1-800-361-7143



CDN / US
Ski-Doo
Revised March 2007

mdd2009-001-231_en

Fuel, oil and spark plug for MY2010 engine.

Engine	Model	fuel	Idle openning	oil	oil pump adj.	spark plug type	spark plug gap	Timing @ 3500 RPM
550F	XP-XU	87	1.6mm	minéral	Visuel	NGK - BR9ECS	0.45mm	2.77mm / 22 deg
550F (Wide Track)	Yeti II	87	1.5mm	minéral	Visuel	NGK - BR9ES	0.45mm	2.77mm / 22 deg
600	XP	87	1.5mm	semi-synth.	16.5mm	NGK - BR10ECS	0.8mm	2.49mm / 20 deg
600 (Summit)	XP	87	2.0mm	semi-synth.	16.5mm	NGK - BR10ECS	0.8mm	2.49mm / 20 deg
600HO ETEC	XP-XR-XU	91	0 degré	semi-synth.	Electronic	NGK - PZFR6F	0.8mm	5.39mm / 28 deg ***
600HO ETEC (Summit)	XP	91	0 degré	semi-synth.	Electronic	NGK - PZFR6F	0.8mm	5.39mm / 28 deg ***
600RS (Racing)	XP	91	2.5mm****	pre-mix semi-synth.33@1	N/A	NGK - BR9ECS	0.45mm	3.37mm / 22 deg
800R	XP	91	4%	semi-synth.	16.5mm	NGK - BR9ECS	0.8mm	2.37mm / 18 deg **
800R (Summit)	XP	91	5%	semi-synth.	16.5mm	NGK - BR9ECS	0.8mm	2.37mm / 18 deg **
V800	Yeti II	87	0 degré	0w40 full synth.	---	NGK - DCPR8E	0.8mm	20 deg *****
1203	XR	87	0 degré	0w40 full synth.	---	NGK - CR8EKB	0.8mm	15 deg *

Note 1: fuel = R+M/2
Note 2: fuel 91 should be "recommended" not "mandatory".
* Between 1500 and 2000 RPM
** Disconnect TPS to verify timing.
***Measure at 3500 RPM PTO side using Buds.
****Measured in the slot.
*****Measured at idle.

mdd2010-001-509

New XPS 2 Stroke and 4 Stroke Oil Features

mdd2010-001-525

The new second generation XPS oils are now available. Make no mistake, the new XPS oils are in fact new oils and have been through an intensive development program to deliver the best oils ever offered from BRP. There are cheaper oils offered from other company's, but keep in mind, all Rotax engines are developed along with BRP's XPS oils. There have been confirmed cases of engine failures related to the poor quality from other brand oils and BRP highly recommends the exclusive use of XPS oil. The newly developed second generation XPS oils will prove to be the best oils ever offered from BRP. It can not be overstated how much research and development went into making the new XPS oil the best oil to work in conjunction with Rotax engines. All Rotax engines ranging from lower output fan cooled engine, to high output liquid cooled 2 and 4 stroke engines have been tested in normal to extreme conditions with the new XPS oils. Without question the new 2 stroke and 4 stroke XPS oils are the best oils available for all Rotax engines.

Regardless of what oil brand a customer chooses, it is always best to drain down oil reservoirs before switching oils. This helps avoid potential compatibility issues such as "gelling" or "gumming".

- The new XPS 2 stroke oils are targeting improved cleanliness, improved wear characteristics, and less smoke and smell.

- The clear advantage of the new XPS formulation is immediately obvious observing the RAVE valves which show very little to no carbon build-up even through extensive long term physical testing with no maintenance.
- With low quality oils, cylinder and piston life is limited because of the amount of cylinder and piston wear. The high detergency content of low quality oils causes an accelerated wear to the honed crosshatch finish of the cylinders and an accelerated wear to the pistons & piston rings. When an engine is run for the same test period cycles with the new XPS oils, the honed crosshatch finish on the cylinders barely show wear and the pistons & piston rings barely show any wear at all. With the new XPS 2 stroke oil executions the shearing and gliding wear mechanism between components such as the cylinder and the piston ring are delayed greatly. There is an improved wear resistance well beyond previous engine physical test target life spans.
- Bearings in a very high output 2 stroke engine can suffer in durability due to overload or grey strain pitting. The new XPS oils have been designed with the right mix of base stocks and additives to target improved crankshaft big end rod bearing life.
- Low quality oils can cause excessive hard carbon depositing in the ring groove areas. Excessive hard carbon deposits forming in the ring grooves will lead to piston failure due to ring sticking or the failure of combustion gasses to exert enough outward force on the ring. This outward force is necessary for proper ring to cylinder wall sealing. Poor ring sealing leads to "blow-by" which over-heats the piston skirt. The new XPS oils reduce hard carbon deposits by instead allowing soft carbon depositing, so the deposits are able to move away and clear out past the ring. This is a clear advantage versus other lower quality oils. Excessive hard carbon deposits accumulating in the ring groove area can also lead to "ring jacking" which exerts too much ring pressure against the cylinder wall. Ring jacking, will eventually lead to outright ring and cylinder damage, and eventually lead to a piston seizure. After extensive physical testing with the new XPS oils, we found only slight semi solid or soft carbon depositing visible in the ring groove allowing proper ring operation.
- Changes in base stocks and additives have dramatically reduced the smoke and smell of the new oils.

The new XPS 4 stroke oils are a tremendous leap forward in technology.

- Low quality 4 stroke oils, are often developed with old technology, designed exclusively for the automotive applications. These oils struggle to provide the long term protection against wear and deposits in the new smaller displacement, high revving and higher output recreational engines. Typical automotive packages also do not have adequate storage additives. The new XPS 4 stroke oils have additional corrosion inhibitors to protect recreational engines during extended storage periods due to seasonal use. These additives are state of the art, and fully protect internal engine components from corrosion. This is especially important for salty environments, humid environments, and moisture in the oil sump as a result of intermittent machine use.
- One of the most important features of the new XPS 4 stroke synthetic formula is the improved Viscosity Index (VI). An engine using the new XPS 4 stoke oil starts easier in cold temperatures and stays at the proper operating viscosity in hot temperatures. Because of this technology, there is a much wider operating range with optimum engine protection in extreme temperatures.
- The latest on liquid oil engineering technologies and development are integrated into the new XPS oil formulations, combined with a tremendous amount of testing in order to ensure that the next generation of BRP oils are fit for the next generations of BRP engines.

Annexes


BRP Rebuild Center:
Le centre de réusinage BRP:
BUILT ON TRADITION. DRIVEN BY EXCELLENCE.
ISSU D'UNE TRADITION AXÉ SUR L'EXCELLENCE.
When it comes to rebuilding peace of mind, we've been doing our part for over 25 years.
Depuis plus de 25 ans, nous avons fait nos preuves et vous pouvez compter sur nous pour perpétuer cette tradition.
rebuilt-components

There's a lot of experience and know-how that goes into every rebuilt part we handle. BRP's commitment to quality is legendary and we really hate to break with tradition. We guarantee that each and every rebuilt part leaves our center matching or altogether eclipsing Rotax's most demanding standards. I guess you could say we're making history every day.

Also, unlike aftermarket suppliers, we do not compete with our dealer network by selling directly to consumers. On the contrary, we take pride in helping you generate more business. And that's the best part.

A day in the life of a part at our state-of-the-art center The BRP remanufacturing crew in Sherbrooke, Quebec, works in a multi-million dollar facility tooled and staffed for one purpose only: making sure that Rotax's trademark durability and performance are alive and kicking in every BRP-rebuilt short block, crankshaft and cylinder. Just how do they accomplish this? Read on and take the tour.

There are 4 rebuilding steps: Disassembly/Inspection & Cleaning, Remanufacturing, Reassembly, Testing & Warranty.

01 Disassembly / Inspection & Cleaning

Short block components that can be remanufactured to original specifications are saved. The rest are discarded.

Reusable parts are cleaned to remove oil and castings are sandblasted.

After further inspection, reusable parts are repainted.

02 Remanufacturing

Nicacil cylinders are replated by Rotax and piston fit is matched.

For steel sleeved cylinders, sleeves are replaced with new Rotax parts and line-bored. Then piston fit is matched.

Crankshaft webs are the only component of the crank even considered for reuse as a rebuilt part.

Whenever a reusable component is not available for replacement, a new Rotax part is used. Only the components that meet our strict standards ever make it past this point.

03 Reassembly

Crankshaft wheels are pressed together with all new Rotax bearings, seals and rod assemblies. They are balanced and blueprinted to within .001".

Crankshafts are set, crankcases are sealed and torqued to OEM specifications.

All short block assemblies are completed with new Rotax standard size pistons, rings, bearings and gaskets.

04 Testing & Warranty

After reassembly, all short blocks are run through a battery of tests, including pressure testing.

Our quality-tested and – controlled products are backed by a comprehensive **one-year limited warranty that covers parts and labor**.

Replacement rebuilt crankshafts and cylinders are also warranted **for one year parts only**.

blue_rebuilt_3

Putting a reasonable price on premium quality is something only BRP can do

The math is simple: **1.** We've lowered our Sea-Doo® rebuilt short block prices; **2.** Dealers who placed a qualified pre-season order **are also** entitled to their repeat order discount on every new rebuilt parts order. **3. We are shipping to our dealers freight free – Saving up to $150.** See how quickly value adds up?

To learn just how much you can save, simply consult your Sales Program for the available discount percentages.

Simply return to the core, and you'll be the center of easy money

Cores are a critical part of the rebuilding process. So we made some changes to the amounts we credit your parts account for approved returned cores. Here how it works:

PARTS	THEN	NOW
Cylinders	$50.00	$75.00
Crankshafts	$200.00	$200.00
Short blocks	$300.00	$700.00

New Sea-Doo® Core Return & Credit Policy*: Hassle-free + Free money

Chances are you have short block, crankshaft and cylinder cores lying around in your service shop. You don't know what to do with them and don't have the right "rebuilt credit" return forms.

No problem: your BRP Rebuild Center now takes them off your hands hassle-free and hands you some free cash in return.

PARTS	THEN	NOW
Cylinders	$0.00	$50.00
Crankshafts	$0.00	$100.00
Short blocks	$0.00	$300.00

*Program is not applicable to Ski-Doo® and Evinrude E-TEC® cores.

Credit amounts may be reduced or altogether refused if any returned core casting are:

Broken, cracked or damaged – Modified in any way (welding of crankshaft, porting of cylinder or crankcase, etc.) – With broken bolts inside the threads – Showing wear around the mounting bolts to the frame – Damaged during transportation due to poor packing – Disassembled or incomplete

The better shape your cores are in, the more we pay out

Condition	Cylinder deduction	Crankshaft deduction	Short block deduction
Broken or cracked casting	$75/50*	NA	$200
Welding	NA	$200/100*	NA
Porting of cylinder & crankcase	$75/50*	NA	$200
Broken bolts inside threads	$75/50*	NA	Up to $200 – depending on location & quantity of broken bolts
Incomplete core	NA	NA	Value of missing parts
Wear around the mounting bolts to the frame	NA	NA	$200
Damaged during transportation due to poor packing	$75/50*	$200/100*	Value of damaged parts Damaged parts

*$75 represents value with Return Core Form, and $50 represents value without Return Core Form.

blue_rebuilt_5

Whether placing an order or returning a core, it's a simple procedure

To do	What to do
Place an order	Simply use BOSSWeb™.
Return a core without a "Rebuilt Credit Form"	• Identify each core as much as possible. Tag them and indicate the engine type as reference. • Fill out and enclose a copy of the enclosed 'Universal' BRP Rebuild Center Core Credit Request Form with the cores in your shipping box (for additional forms go on BOSSWeb™.)
Return a core with a "Rebuild Credit Form"	• Return the white copy of the "Rebuild Credit Form", included with every rebuilt part shipped by the Rebuild Center, along with the core. • Cores received with the yellow copy or with a photocopy will be considered as core returns without the Rebuilt Credit Form. The white copy is, therefore, required in order to receive the proper credit amount.

Shipping core returns: Must be freight prepaid

Who / What	Where
US Dealers	BRP 7575 Bombardier Court Wausau WI, 54401 (Please use Rebuild / Warranty Return Label # 480901601)
Canadian Dealers	BRP 75 J.A. Bombardier Street Sherbrooke, QC J1L 1W3 (Please use Rebuild / Warranty Return Label # 480901500)
For defective parts replaced with rebuilt parts and in connection with a warranty claim (Canadian dealers only)	BRP Warranty Part Inspection Center 565 de la Montagne Valcourt, QC CANADA, J0E 2L0 (Please use Rebuild / Warranty Return Label # 484500001, and include copy of claim and core credit form)

IMPORTANT

If only the short block has been changed, the old engine plate must be applied to the new short block. Do not ship the plate.

Who needs to know	Who knows
US Dealers	PAC Analyst: 1 800 366-6992
Canadian Dealers	PAC Analyst: 1 800 361-9980

blue_rebuilt_7

BRP REBUILD CENTER

May 2009

DEALER PROCEDURE
SKI-DOO® REBUILT GEARBOX FOR SKANDIC® AND EXPEDITION® TUV TRANSMISSIONS

This 4-step procedure applies specifically to Skandic and Expedition TUV gearbox repairs.

1. Dealer completes the Repair Request form from BOSSWeb™, agrees to its terms and conditions, and faxes form to the Rebuild Center. (Also confirms if replaced parts are to be returned.)
2. Rebuild Center sends a confirmation and an authorization number by fax to the dealer, after which the dealer can send the gearbox in for repair.
3. Rebuild Center receives gearbox and performs repairs.
4. Service and freight are charged to dealer parts account and rebuilt gearbox is returned to dealer.

As with every part we rebuild, we guarantee that each Skandic and Expedition TUV gearbox we repair will leave our state-of-the-art facility performing as per or above the most demanding standards. To learn more or to find out what else is new at the BRP Rebuild Center, please call your PAC analyst at **1 800 366-6992 (US) / 1 800 361-9980 (CA)**.

mdd2010-001-501

PRODUCT	REBUILT PART	PART	ENGINE TYPE	COOLING SYSTEM F/C - L/C	AMOUNT CYL.	YEAR	DESCRIPTION	ORIGINAL PART #
SKI-DOO	421000635	REP	GEARBOX REPAIR REQUEST		N/A		Dealer completes form from host web	N/A
	421000031	CRANKSHAFT	277	F/C	1	1993 to 2005		420995301
	421000639		277	F/C	1	2006 to 2008		420995307
	421000009		377 - 443	F/C	2	1992 to 1996		420887245 / 420996332
	421000154		377 - 443	F/C	2	1997 to 2006		420889630
	421000151		494	L/C	2	1996 to 2000		420886933
	421000567		493	L/C	2	2000 to 2002		420888462
	421000598		493	L/C	2	2003		420888465
	421000011		503	F/C	2	1990 to 1996	Keyway at 3 o'clock	420996449
	421000155		503	F/C	2	1997 to 2003		420888390 / 420888391
	421000601		552	F/C	2	2003 to 2008		420 889 062
	421000021		532-536-537-582	L/C	2	1985 to 1996		420996628
	421000044		583	L/C	2	1990 to 1993		420887355
	421000044		583	L/C	2	1994 to 1999		420 887 355
	421000553		593	L/C	2	1999		420888250
	421000563		593	L/C	2	2000 to 2002		420888252 / 420888751
	421000611		593	L/C	2	2003 to 2008		420888757
	421000622		593SDI	L/C	2	2004 to 2008	593 SDI ONLY	420889098 / 420889950
	421000664		593 ETEC	L/C	2	2008 & 2009	593 SDI E-TEC	420889956 / 420889955
	421000574		693	L/C	2	2000 to 2002	DIECAST ENGINE ONLY	420888286
	421000609		693 593HO	L/C	2	2003 to 2007	693 AND 593 HO ONLY	420889091
	421000152		599	L/C	3	1996 & 1997		420887970
	421000310		599 - 699 CK3	L/C	3	1998 to 2000	New modified part for 1999-2000	420888030 / 420888034
	421000153		699	L/C	3	1997		420887605
	421000573		793	L/C	2	2000 to 2002		420888402
	421000608		793	L/C	2	2003	2003 ONLY	420889101
	421000607		793HO	L/C	2	2003 to 2007	HO ONLY	420889671
	421000606		793SDI	L/C	2	2003 & 2004	SDI ONLY	420889106
	421000688		797	L/C	2	2009	REV-XP	420892567
	421000156		809	L/C	3	1997 to 2003	New modified part for 1999-2002	420887667 / 420887668 420887662
	421000634		995SDI	L/C	2	2005 & 2006		420889217
	421000200	CYLINDER	277	F/C	1	1993 to 2004		420913218 / 420913219
	421000559		377	F/C	2	1999 to 2004	Pto	420923403
	421000560		377	F/C	2	1999 to 2004	Mag	420923408
	421000568		493	L/C	2	2001 to 2003		420923855 / 420613605
	421000500		503	F/C	2	1983 to 2003		420923417
	421000600		552	F/C	2	2003 to 2006		420923975
	421000651		552	F/C	2	2007 & 2008	552 RF models	420623141
	421000578		593	L/C	2	1999 to 2004	All models	420613620 / 420613625
	421000550		670	L/C	2	1993 to 1999	HO cylinder fits all except Mach 95 & 96	420923700 / 420923193
	421000605	NIC. CYL.	593HO	L/C	2	2003 to 2006	H.O. ONLY	420613711
	421000624		593SDI	L/C	2	2004 to 2006	593 SDI ONLY	420613940 / 420613944
	421000667		593 ETEC	L/C	2	2008 & 2009		420623280 / 420623282
	421000566		693	L/C	2	2000 to 2004		420923692 / *923693 / *923695
	421000064		699	L/C	3	1997 to 2000		420923420
	421000579		793	L/C	2	2000 to 2004	WITH OUT DEKO SLOTS	420923811 / 420923817
	421000604		793HO	L/C	2	2003 to 2006	H.O. ONLY	420613852
	421000666		797	L/C	2	2007 to 2009		420623240
	421000068		809	L/C	3	1997 to 2003		420613852
	421000636		995SDI	L/C	2	2005 & 2006	CYLINDER BLOCK	420613746
SKI-DOO	421000625	SHORTBLOCK	377	F/C	2	2004 to 2006	New 377 with oil check valves	
	421000617		493	L/C	2	2003		
	421000410		503	F/C	2	1994 to 1999		N/A
	421000602		552	F/C	2	2003 to 2006	Except REV, RF and Exped. Models	420055201
	421000638		552	F/C	2	2005 & 2006	REV and Expedition Models	420055206
	421000663		552	F/C	2	2008 & 2009	552cc RF MODEL	420055207
	421000616		593	L/C	2	2001 to 2007		
	421000660		593XP	L/C	2	2008 & 2009	XP500SS	420059310/420059312
	421000615		593HO	L/C	2	2003 to 2007	H.O. ONLY	
	421000623		593SDI	L/C	2	2004 to 2007	593 SDI ONLY	
	421000659		593SDI-XP	L/C	2	2008 & 2009	593SDI-XP models	420059373
	421000662		593 ETEC	L/C	2	2008 & 2009	593 SDI E-TEC	420059350 / *059351 / *059352
	421000614		693	L/C	2	2001 to 2004		
	421000613		793	L/C	2	2001 to 2003		
	421000612		793HO	L/C	2	2003 to 2007	H.O. ONLY	
	421000645		797	L/C	2	2006 & 2007	NOT FOR XP MODEL	420079703 / 420079704
	421000650		797	L/C	2	2008	REV-XP	420079705/420079707
	421000661		797	L/C	2	2009	REV-XP	420079706
	421000637		995SDI	L/C	2	2005 & 2006		420099502
CAN-AM	421000628		175	L/C	1	2003 to 2005	RALLY-175	420296420
	421000157	CRANKSHAFT	511	L/C	1	all	Traxter	420295893
	421000577		654	L/C	1	all	DS650	711295192
	421000594	4-tec Engine	650	L/C	1	Quest 650 all	QUEST 650 only	

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PRODUCT	REBUILT PART	PART	ENGINE TYPE	COOLING SYSTEM F/C - L/C	AMOUNT CYL.	YEAR	DESCRIPTION	ORIGINAL PART #
SEA-DOO	421000074	Crankshaft	717	L/C	2	1995 to 2003		290887867
	421000076		787	L/C	2	1996 to 1999	Carb.	290886103
	421000712		787RFI	L/C	2	1998 to 2005	RFI	290887890 / 420887891
	421000571		947DI	L/C	2	all	D.I.	290887767
	421000711		947	L/C	2	1998 to 2003	Except D.I.	290887762
	421000056	CYLINDER	717	L/C	2	1995 to 2003		290923805
	421000059		787	L/C	2	1996 to 1999	Carb.	290923503
	421000813		787RFI	L/C	2	1998 to 2003	RFI	290923846
	421000626		787RFI	L/C	2	2004 to 2005	RFI	420623086
	421000561		947	L/C	2	1998 to 2002	Except D.I.	290613561
	421000570		947DI	L/C	2	2001	D.I.	290923716
	421000205		947DI	L/C	2	2002 & 2003	D.I.	420613576
	421000097	Shortblock	717	L/C	2	1995 to 2005		290071703
	421000098		787	L/C	2	1995	USE 421 000 100 + 290 958 057	290881527 / 290881528
	421000100		787	L/C	2	1996 to 1999	Carb.	290078704
	421000913		787RFI	L/C	2	1998 to 2003	RFI	290078703
	421000627		787RFI	L/C	2	2004 & 2005	RFI	420078707
	421000562		947	L/C	2	1998 to 2002	Except D.I.	290094703
	421000572		947DI	L/C	2	2001	D.I.	290094705
	421000416		947DI	L/C	2	2002 to 2005	D.I.	420094706
	421 000 582	BAL. SHAFT	947	L/C	2	1998 to 2002	BALANCING SHAFT	290837387
	421000647	longblock 4 tec	1503 N/A	L/C	3	2002 to 2005	Long Block	270000645
	421000648		1503 B/V	L/C	3	2003 to 2005	Long Block	270000644
	421000649		1503 I/C	L/C	3	2004 & 2005	Long Block	270000643
	421000640		1503 DT	L/C	3	2006 & 2008	1st Oversize Long Block	420150345
	421000641		1503 N/A	L/C	3	2006 & 2008	1st Oversize Long Block	420150315
	421000642		1503 I/C	L/C	3	2006 & 2008	1st Oversize Long Block	420150335
	421000658		1503 HO	L/C	3	2008	1st Oversize Long Block	420150355
	421000652	Basic longblock	1503 N/A	L/C	3	2006 & prior	Basic Long Block	270000645
	421000653		1503 B/V	L/C	3	2005 & prior	Basic Long Block	270000644
	421000654		1503 I/C	L/C	3	2004 & 2005	Basic Long Block	270000643
	421000655		1503 DT	L/C	3	2006 to 2008	Basic Long Block	420150345/420150347
	421000656		1503 NA	L/C	3	2006 to 2008	Basic Long Block	420150335/420150337
	421000657		1503 IC	L/C	3	2006 to 2008	Basic Long Block	420150335/420150337
	421000644	Head	1503 B/V	L/C	3	2002 to 2008	Head with valves installed	420613976/420613978

To be discontinued when out of stock

SKI-DOO	421000120	CYL.	583	L/C	2	1995 to 1999		420923670
	421000105		378	F/C	2	1996 & 1996	Mag	420823809
	421000113		467	L/C	2	1995 to 1995		420823899
	421000115		494	L/C	2	1996 & 1997	# 420 887 553 at 89.39 mm	420923148
	421000551		494	L/C	2	1998 to 2000	All models except Skandic	420923617
	421000552		494	L/C	2	1998 to 2000	Skandic only	420923619
	421000121		643	L/C	2	1991 & 1992		420913077
	421000124		670	L/C	2	1995 & 1996	Mach 1 only	420923189
	421000021	CRANKSHAFT	532-536-537-582	L/C	2	1985 to 1996		420996628
	421000044		583	L/C	2	1990 to 1993		420887355
	421000150		454	L/C	2	1995 to 1996		420887982 / 420887966
	421000610	NIC. CYL.	454	L/C	2	1997 & 1998		420923172
	421000067		599	L/C	3	1996 to 1999		420923112
	421000555		693	L/C	2	2000	SANDCAST Cylinder bolts M8	420923891
	421000597		793	L/C	2	2002		420923810 / 420923815
	421000066		599	L/C	2	1995	XP 800	420923110
	421000575	Short Block	493	L/C	2	2000 to 2002		420049302
	421000414		670	L/C	2	1998 & 1999	1 exhaust pipe	N/A
	421000415		670	L/C	2	1996 & 1999	Summit X & MXZ H.O.	N/A
SEA-DOO	421000071	CRANKSHAFT	587	L/C	2	1988 to 1993	Labyrinthe Seal	290886797
	421000072		587	L/C	2	1994 to 1996		290886797
	421000075		787	L/C	2	1995		
	421000053	CYLINDERS	587	L/C	2	1992 to 1996	White	290913376
	421000054		657	L/C	2	1993 & 1994	Except White XP 1994	290913380
	421000094	Short Block	587	L/C	2	1988 to 1991	yellow	290881444
	421000096		657X	L/C	2	1994/1995	XP white/white spx-gtx	290881449

Note: Old core will be completely refunded only if :

- Core is returned within 30 days with the filled-out rebuilt confirmation form
- Core is same model as the one shipped
- Core casting is not broken
- Core is complete and fully assembled
- Core is shipped prepaid to BRP
- Core is returned in original packaging to avoid freight damages

Not respecting those requirements could result in a refused or reduced core credit

LEGEND	
CR	CRANKSHAFT
CY	CYLINDER
CY N	CYLINDER (NICASIL)
REP	REPAIR ONLY
SB	SHORT BLOCK

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BRP Oils and Lubricants / Huiles et lubrifiants BRP

Part #	Product Description	Size	Ski-Doo	Sea-Doo	ATV	
293 600 011	Synthetic jet pump oil 75W90 Huile synthétique 75W90 pour turbine	177 ml (6 oz).	-	X	-	
293 600 043	Synthetic gear oil 75W90 Huile synthétique 75W90 pour engrenage	946 ml (32 oz)	-	-	X	Same as 293 600 011 but 946 ml (32 oz)
413 801 900	XP-S chaincase oil Huile XP-S pour carter de chaîne	250 ml (8.4 oz)	X	-	X	
413 803 300	XP-S synthetic chaincase oil Huile synthétique XP-S pour carter de chaîne	355 ml (12 oz)	X	-	X	
413 711 600	XP-S storage oil / Huile de remisage XP-S	spray 473 ml (16 oz)	X	X	X	
293 600 016	XP-S lubricant / Lubrifiant XP-S	Spray 473 ml (16 oz)	X	X	X	General use Usage générale
293 550 010	XP-S synthetic grease Graisse synthétique XP-S	400 g tube (14 oz)	-	X	-	High rev marine application Utilisation marine, revolution élevée
293 550 033	XP-S synthetic grease Graisse synthétique XP-S	400 g tube (14 oz)	X	-	X	For suspension Pour suspension
413 408 600	Fuel stabilizer / Stabilisateur de carburant	236 ml (8 oz)	X	X	X	
413 803 100	XP-S premix oil / Huile prémélangée XP-S	500 ml (17 oz)	X	X	X	For carbureted 2-stroke Pour moteur deux-temps à carburateur.
413 802 900	XP-S 2-stroke mineral injection oil Huile minéral XP-S pour moteur deux-temps	1 U.S. Quart / 946 ml	X	X	X	For carbureted 2-stroke and ATV: Mini DS 2-stroke only
413 803 000	XP-S 2-stroke mineral injection oil Huile minéral XP-S pour moteur deux-temps	1 U.S. Gallon / 3.785 L	X	X	X	Pour moteur deux-temps DI, SDI et à carburateur.
413 803 200	XP-S 2-stroke mineral injection oil Huile minéral XP-S pour moteur deux-temps	Drum 205 L / 54 US gallons	X	X	X	VTT: Mini DS à moteur deux-temps seulement VTT: Mini DS à moteur deux-temps seulement
293 600 071	XP-S Semi-Synthetic 2-stroke oil Huile Semi-Synthétique XP-S pour moteur deux-temps	1 U.S. Quart / 946 ml	X	X	X	For DI, SDI and Carbureted 2-stroke. ATV: Mini DS 2-stroke only
293 600 072	XP-S Semi-Synthetic 2-stroke oil Huile Semi-Synthétique XP-S pour moteur deux-temps	1 U.S. Gallon / 3.785 L	X	X	X	Pour moteur deux-temps DI, SDI et à carburateur.
293 600 073	XP-S Semi-Synthetic 2-stroke oil Huile Semi-Synthétique XP-S pour moteur deux-temps	Drum 205 L / 54 US gallons	X	X	X	VTT: Mini DS à moteur deux-temps seulement
293 600 045	XP-S Synthetic 2-stroke oil Huile Synthétique XP-S pour moteur deux-temps	1 U.S. Quart / 946 ml	X	X	X	For DI, SDI and Carbureted 2-stroke. ATV: Mini DS 2-stroke only
293 600 046	XP-S Synthetic 2-stroke oil Huile Synthétique XP-S pour moteur deux-temps	1 U.S. Gallon / 3.785 L	X	X	X	Pour moteur deux-temps DI, SDI et à carburateur.
293 600 047	XP-S Synthetic 2-stroke oil Huile Synthétique XP-S pour moteur deux-temps	Drum 205 L / 54 US gallons	X	X	X	VTT: Mini DS à moteur deux-temps seulement
293 600 054	XP-S 4-stroke Synthetic oil 0W40 Huile XP-S Synthétique 0W40 pour moteur quatre-temps	1 U.S. Quart / 946 ml	X	-	-	Recommended for V-1000 Recommandé pour V-1000
293 600 039	XP-S 4-stroke Synthetic oil 5W40 Huile XP-S Synthétique 5W40 pour moteur quatre-temps	1 U.S. Quart / 946 ml	-	X	X	Not recommended for the supercharged engines.
219 700 359	XP-S 4-stroke Synthetic oil 5W40 Huile XP-S Synthétique 5W40 pour moteur quatre-temps	Drum 205 L / 54 US gallons	-	X	X	Non recommandé pour moteur à surcompresseur.
219 700 706	XP-S 4-stroke Mineral oil 5W30 Huile minéral XP-S 5W30 pour moteur quatre-temps	1 U.S. Quart / 946 ml			X	New
219 700 702	XP-S 4-stroke Mineral oil 5W30 Huile minéral XP-S 5W30 pour moteur quatre-temps	Drum 205 L / 54 US gallons			X	New
219 700 346	XP-S 4-stroke Mineral oil 10W40 Huile minéral XP-S 10W40 pour moteur quatre-temps	1 U.S. Quart / 946 ml	-	X	-	See Oil Application Chart in Operator's Guide for ATV's / Recommended for the supercharged engines, Sea-Doo Pour VTT, se référrer à la charte d'utilisation des huiles du Guide de l'opérateur. / Recommandé pour moteur à surcompresseur, Sea-Doo
219 700 433	XP-S 4-stroke oil 10W40 Huile minéral XP-S 10W40 pour moteur quatre-temps	Drum 205 L / 54 US gallons	-	X	-	

mdd2008-002-505

mdd2008-002-002_en

Bombardier Recreational Products Inc.

REPORT ON PERFORMANCE/QUALITY (FROM DEALER)

ski-doo

N.B. If fields with grey headings are not completed, the report **can not be processed!**

DATE (YEAR-MONTH-DAY)	REPORTED BY	DEALER'S NUMBER (999999)	CONTACT
	First Name: Last Name:		First Name: Last Name:

CIRCLE THE APPLICABLE CONDITION

ENVIRONEMENT

- 1.1 During PDI
- 1.2 Freight Damage
- 1.3 Open Fields
- 1.4 Groomed Trails
- 1.5 Trail not Maintained
- 1.6 Lake
- 1.7 Mountains
- 1.8 Race Track
- N.A.*

TYPE OF USAGE

- 3.1 Touring
- 3.2 Sport Riding
- 3.3 Logging/Towing
- 3.4 Trail Grooming
- 3.5 Racing
- 3.6 Hill Climbing
- 3.7 Unused-New
- N.A.*

SNOW CONDITION

- 2.1 Powder
- 2.2 Hard Pack
- 2.3 Icy
- 2.4 Marginal
- N.A.*

THROTTLE OPENING

- 1/4
- 1/2
- 3/4
- 4/4
- N.A.*

CIRCLE THE APPLICABLE SYSTEM

N.A. if not applicable

- 01 Engine/Manual Starter
- 02 Fuel System/Oil System
- 03 Exhaust System
- 04 Electrical System (starter, ignition)
- 05 Transmission
- 06 Brake System
- 07 Steering System
- 08 Suspension
- 09 Body
- 10 Crate/Accessories/ Special Tools
- 11 N.A.
- 118 Multiple System

OUTSIDE TEMPERATURE	Select Measure	SPEED	Select Measure
	☐F ☐C		☐km/h ☐MPH

MODEL NUMBER (9999)	SERIAL NUMBER (99999)	MILEAGE	Select Measure	RPM	PART NUMBER (999 999 999)
			☐km ☐m.		- -

PROBLEM DESCRIPTION

CORRECTIVE ACTION TAKEN

COMMENTS/OTHER OBSERVATIONS

FO419-SAV-03 (05-99) N.A.* Info Unavailable 484 300 084

BRP US Inc.
7575 Bombardier Court
Wausau, Wisconsin, USA 54401
T 715.842.8886 F 715.847.6879

www.brp.com

Application for BRP "Master Technician Level"

Important: Do not fax this to 715-847-6866 unless you meet ALL qualifications

1) Minimum of 5 years as a Powersports Industry mechanic
2) Minimum of 2 years at your current BRP dealership
3) Maintain Certified Technician Level for 1 year by doing your updates
4) 90% or higher **(from now on)** on 1st attempt of applicable Technical Update exams **(update exams are also used to maintain your Master Level every year for every product line)**

As Page 2 of this fax, please include your "Technician progress detailed report" **(found at the bottom of your BRPTI Home page)**

Full Name :_____

Nick Name:_____

BRPTI Number (found on your home page of BRPTI):_____

Date & Location achieved certified status (found on your Certified Technician certificate):

Ski-Doo_____ Sea-Doo_____ Can-Am ATV_____

_____ _____ _____

Current Dealer Name: _____

Current Dealer Number:_____ Start Date: _____

Previous Dealer/Powersports Info (if applicable):_____

Previous Dealer Phone Number _____

Previous Dealer Start Date:_____ End Date: _____

I, the undersigned, certify that I meet the requirements for Master Technician

X _____

Master Application June 30, 2006

Ski-Doo
Lynx
Sea-Doo
Evinrude
Johnson
Rotax
Can-Am

sdd2007-001-710_MasterTechApp_en

BRP ACCIDENT / INCIDENT REPORT	DATE OF ACCIDENT / INCIDENT	Year	Month	Day

DEALER NUMBER :		NAME OF DEALER / DISTRIBUTOR :	
Contact person at dealership :		Town/City:	
Date of Report:	am pm	State/Prov.:	

PLEASE REPRESENT SITUATION BY DRAWING AND IDENTIFYING VEHICLE 1 AND/OR VEHICLE 2 - MAKE SURE TO COMPLETE NARRATIVE ON PAGE 5

VEHICLE NO. 1

Owner's Name:		Product Experience: Hours ☐ 0-50 ☐ 50-100 ☐ 100-150 ☐ 150-200 ☐ 200+	
Owner's Address:		Completed State/ Prov. Product Safety Course: ☐ Yes ☐ No ☐ N.A.	
Town/City:	State/ Prov.:	Year Taken:	Certificate No.:
Zip/ Postal Code:	Tel. No.:	Member of Product Club/ Association: ☐ Yes ☐ No	If Yes name?
Operator's Name: (unless same as owner)		Occupation:	Employer:
Operator's Address:		Passenger's Name:	
Town/ City:	State/ Prov.:	Passenger's Address:	
Zip/ Postal Code:	Tel. No.:	Town/ City:	State/ Prov.:
Driver's License No.:	Coded Restrictions:	Zip/ Postal Code:	Tel. No.:
Years Licensed as Driver: ☐ 1-3 ☐ 3-6 ☐ 6-10 ☐ 10+		Date of Birth: Year / Month / Day	
Date of Birth: Year / Month / Day		Age:	Sex: ☐ Male ☐ Female
Age:	Sex: ☐ Male ☐ Female	Product Experience Hours ☐ 0-50 ☐ 50-100 ☐ 100-150 ☐ 150-200 ☐ 200+	

Make:	Model:	Year:	Safety Devices Present: ☐ Yes ☐ No
License No.:	Serial No.:		Safety Device in Use: ☐ Yes ☐ No
☐ Owned ☐ Borrowed ☐ Rent			Warning or Caution Statement Present: ☐ Yes ☐ No
Date of Predelivery:	Date of 1st Recommended Inspection:		Proper Operating Instructions Present: ☐ Yes ☐ No
Date of Recent Service:	Mileage/Hours :		Had Product Undergone Modification/ Recall Approved by Manufacturer? : ☐ Yes ☐ No
Dealer's Name:			Had Product Undergone Modification by Former Owner? : ☐ Yes ☐ No
Dealer's Address:			Were All Components on Product Original? : ☐ Yes ☐ No
Town/City:	State/Prov.:		If no, what was changed?
Zip/Postal Code:	Tel. No.:		Were Replacement Components Sold by Product Manufacturer or Representative? : ☐ Yes ☐ No
Product Registration No.:	Year of Registration:		Were All Components on Any Security Item Fastened to the Product? : ☐ Yes ☐ No
Insured: ☐ Yes ☐ No			Were All Scheduled Maintenance Procedures Performed by an Authorized BRP Dealer? ☐ Yes ☐ No
Policy No.:	Expiracy Date:		Was Routine Lubrication and Maintenance Given to the Products as Specified by the Manufacturer? ☐ Yes ☐ No
Name of Ins. Company:			

October 2008 BRP 1

vdd2008-001_120_Accident_report_

ACTIVITY:	Unknown ☐	Transportation ☐	Racing ☐
	Recreation ☐	Work ☐	Other ☐
Witnesses' Name: (if more than one please join another page / witness)			
Witnesses' Address:			
			Phone:
Did the operator perform a pre-start check of the product before the accident? ☐ Yes ☐ No			
Was the operator familiar with the area being traveled? ☐ Yes ☐ No			
Did the operator complete any appropriate safety training courses relative to product (i.e. SVIA)? ☐ Yes ☐ No If so what type?			
Did the operator review the product safety video or DVD supplied with the vehicle? ☐ Yes ☐ No			

VEHICLE NO. 2

Owner's Name:				Product Experience: Hours ☐ 0-50 ☐ 50-100 ☐ 100-150 ☐ 150-200 ☐ 200+			
Owner's Address:				Completed State/ Prov. Product Safety Course: ☐ Yes ☐ No ☐ N.A.			
Town/City:	State/ Prov.:			Year Taken:		Certificate No.:	
Zip/ Postal Code:	Tel. No.:			Member of Product Club/ Association: ☐ Yes ☐ No		If yes name?	
Operator's Name: (unless same as owner)				Occupation:		Employer:	
Operator's Address:				Passenger's Name:			
Town/ City:	State/ Prov.:			Passenger's Address:			
Zip/ Postal Code:	Tel. No.:			Town/ City:		State/ Prov.:	
Driver's License No.:	Coded Restrictions:			Zip/ Postal Code:		Tel. No.:	
Years Licensed as Driver: ☐ 1-3 ☐ 3-6 ☐ 6-10 ☐ 10+				Date of Birth:	Year	Month	Day
Date of Birth:	Year	Month	Day	Age:		Sex: ☐ Male ☐ Female	
Age:	Sex: ☐ Male ☐ Female			Product Experience : Hours ☐ 0-50 ☐ 50-100 ☐ 100-150 ☐ 150-200 ☐ 200+			

Make:	Model:	Year:	Safety Devices Present: ☐ Yes ☐ No If Yes specify	
License No.:	Serial No.:		Safety Device in Use: ☐ Yes ☐ No If Yes specify	
☐ Owned ☐ Borrowed ☐ Rent			Warning or Caution Statement Present: ☐ Yes ☐ No If Yes specify	
Date of Predelivery:	Date of 1st Recommended Inspection		Proper Operating Instructions Present: ☐ Yes ☐ No If Yes specify	
Date of Recent Service:	Mileage/Hours:		Had Product Undergone Modification/ Recall Approved by Manufacturer? : ☐ Yes ☐ No	
Dealer's Name:			Had Product Undergone Modification by Former Owner? : ☐ Yes ☐ No	
Dealer's Address:			Were All Components on Product Original? : ☐ Yes ☐ No	
Town/City:	State/Prov.:		Were All Components on Any Security Item Fastened to the Product? : ☐ Yes ☐ No	
Zip/Postal Code:	Tel. No.:		Were Replacement Components Sold by Product Manufacturer or Representative? : ☐ Yes ☐ No	
Product Registration No.:	Year of Registration:		If no, what was changed?	
Insured: ☐ Yes ☐ No			Were all scheduled maintenance procedures performed by an Authorized BRP dealer? ☐ Yes ☐ No	
Policy No.:	Expiracy Date:		Was Routine Lubrication and Maintenance Given to the Products as Specified by the Manufacturer? ☐ Yes ☐ No	
Name of Ins. Company:				

ACTIVITY:	Unknown ☐	Transportation ☐	Racing ☐
	Recreation ☐	Work ☐	Other ☐
Witnesses' Name: (if more than one please add a page)			
Witnesses' Address:			
			Phone:
Did the operator perform a pre-start check of the product before the accident?	☐ Yes ☐ No		
Was the operator familiar with the area being traveled?	☐ Yes ☐ No		
Did the operator complete any appropriate safety training courses relative to product (i.e. SVIA)? ☐ Yes ☐ No If so what type?			
Did the operator review the product safety video or DVD supplied with the vehicle? ☐ Yes ☐ No			

PROPERTY DAMAGE VEHICLE 1

Vehicle/Components:	ESTIMATED COST OF REPAIR :
	Vehicle: $
Environment/Private:	Property: $
	Total: $

PROPERTY DAMAGE VEHICLE 2

Vehicle/Components:	ESTIMATED COST OF REPAIR :
	Vehicle: $
Environment/Private:	Property: $
IF OTHER VEHICLE INVOLED, ADD ANOTHER SHEET	Total: $

ACCIDENT / INCIDENT DATA

Type of Terrain

Road, Right of way ☐	River ☐	Private Trail ☐	Railroad ☐	Sea ☐	Open Field ☐	Hilly Mountains ☐
Ditch ☐	Public Trail ☐	Stream ☐	Lake ☐	Wooded ☐	Other ☐	

Type of Topography

Unknown ☐	Crest Cover ☐	Slope Up ☐	Side Slope ☐	Straight ☐
Level ☐	Bottom of Hill ☐	Slope Down ☐	Curve ☐	Other ☐

Surface Cover (Type)			Precipitation		Visibility		Ambient Temperature
Bare Ground ☐	Ice ☐	Complete Cover ☐	None ☐	Snow ☐	None ☐	Precipitation ☐	Actual Temperature :
Soft Snow ☐	Calm Water ☐	Partial Cover ☐	Rain ☐	Sleet ☐	Darkness ☐	Fog-Smoke-Dust ☐	_____ ☐ °C
Hard Pack Snow ☐	Rough Water ☐	Asphalt ☐		Hail ☐	Other ☐		_____ ☐ °F
Other ☐			Other ☐				

Location of Accident:			Estimated Speed: Vehicle 1 : Vehicle 2 :
TIME OF ACCIDENT / INCIDENT:	Morning ☐	Afternoon ☐	Night ☐

October 2008 BRP

vdd2008-001_120_Accident_report_

INJURY DATA

Person Involved	TYPE OF INJURY	Death	Exposure	Bruise	Burns
Address:		Fracture	Sprain	Lacerations	Internal
	PART OF BODY INJURED	Head	Back	Abdomen	Lower Limb
		Face/Neck	Chest	Upper Limb	Other

If more than one person was injured, please join another page per person

Was the person injured in? ☐ Vehicle 1	☐ Operators	☐ Passenger	☐ Other Please specify :
☐ Vehicle 2	☐ Operators	☐ Passenger	☐ Other Please specify :
CLOTHING:	Suit ☐	Boots/Deck Shoes ☐	Visor/Goggles ☐
Wetsuit ☐	Helmet ☐	Gloves/Mitts ☐	Life Jacket ☐

Doctor's Name:	
Doctor's Address:	
Length of Stay Hospital:	
Accident Reported to:	
Was the person injured aware that what he was doing might result in injury?	☐ Yes ☐ No
Was there anything to distract the injured person's attention from what he was doing?	☐ Yes ☐ No What?
Had anything happened to upset the person injured that day or at the time of accident?	☐ Yes ☐ No What?
Was the person injured unusually tired or fatigued that day, or at the time of accident	☐ Yes ☐ No
Was the person injured ejected from product?	☐ Yes ☐ No If so How?
Was the person injured entrapped by product?	☐ Yes ☐ No If so by What?
Was the person injured in a hurry at the time of the accident?	☐ Yes ☐ No
Has the person injured or any member of his family had injury, accident or close call from this previous activity?	☐ Yes ☐ No If so What?
Had the person injured taken any precautions to prevent an accident?	☐ Yes ☐ No If so What?
Was the person injured familiar with the proper operation of the product?	☐ Yes ☐ No
Was the person injured informed of proper driving position/techniques before riding the product?	☐ Yes ☐ No
Was passenger wearing adequate clothing/helmet/lifejacket	☐ Yes ☐ No
How often had the person injured performed this specific activity before?	

Describe activities of person injured leading up to and at time of injury: _____

Describe physical condition of person injured at time injury (consider: wearing glasses, handicapped or disabled, influenced by alcohol or drugs, mentally ill, chronically ill) :

Had the operating literature been read and understood by the person injured?	☐ Yes ☐ No
If no Why?	
Had victim ever been involved in another accident other than with this product? (Motor vehicle, Marine, Occupational, Recreation, Other):	☐ Yes ☐ No
If so When?	
Was the person injured informed of proper driving position/techniques before riding the product?	☐ Yes ☐ No
Was passenger wearing adequate clothing/helmet/lifejacket?	☐ Yes ☐ No

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NARRATION REPORT BY PERSON INVOLVED

If narration is done by someone else than the person involved, please identify yourself and sign the Narration report:

☐ Attach Police or Fire Department reports	Include photographs of : ☐ Vehicle ☐ Scene ☐ Injuries

Signature: _____

Narration date: _____

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