2009 Technical Update Book

TECHNICAL UPDATE BOOK and the DEALER CERTIFICATION PROGRAM:

The Technician Level Training is mandatory for your dealership to achieve Platinum Certified status (for North American dealer only).

ATTENTION: "Technician Level" is one technician (one BRPTI student) who has completed the technical DVD exams 1-5 (6=Sea-Doo dealers) PLUS the current Technical Update book exam on BRPTI. This technical update book exam must be completed with a passing score in BRPTI within 60 days of receipt of this manual, to complete this criteria in the Dealer Certification Program.

Technician Level Training: Each technician that has completed their Ski-Doo Technician Level must complete the technical update exam on 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 2008

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 personal profile in BOSSWeb by making sure that all the fields identified with *, $ and T are completed and the BRP Dealer Employee – BRPTI responsibility is added 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 the right BRPTI accesses:

1. Access BRPTI via BOSSWeb Training BRPTI.
2. In the "Favorites" box, click on "Courses".
3. Check "English", click on "Start search — GO".
4. Find **2009 Ski-Doo Technical Update** in the list of courses.
5. Click on the yellow 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 "Favorites" box. This will take you back to your home page where you will see the course (exam) is now in your "Levels to complete" section.
9. In the "Levels to complete" section, click on the **2009 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 that apply to his certification.
– To qualify for Master Level Status a technician must score **90% or greater** on the first attempt at any Technical Update exams related to the products the dealership carries.

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 attempt, on Technical Update exam(s) (also used to maintain your Master Level every year for every product line).

If you need assistance, contact:

For accesses and logins contact the BOSS-Web help desk:		If you need assistance with the exams or use of the BRPTI application, contact:	
USA	800 366-6992 (4-1)	USA	800 366-6992 (5-5)
Canada	800 361-9980 (4-1)	Canada	800 361-9980 (5-5)

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

JUST DIAL: ONE TOLL-FREE NUMBER

From USA From Canada	800 366-6992 800 361-9980	Dealer Only

It's Quick and Easy		**BRP Network Support**	
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.	Service	Shortcut path using phone keys	
	Parts Accessories Clothing support (PAC)	1-1	Analysts
		1-1-1	ETA or BO details
		1-1-2	Parts and Kit Specification
		1-1-3	Shipping Information
		1-1-4	Order and Order Status
		1-1-5	For Returns
		1-1-6	Other PAC questions
		1-2	PAC Internal Sales Representative
	Technical Service	2-1	Ski-Doo
		2-2	Sea-Doo Watercraft and Sport boats
		2-3	Can-Am ATV and Roadster
	Warranty	3-1	Warranty on clothing
		3-2	Claim questions or information
		3-3	Warranty coverage
		3-4	Unit info and registration
		3-5	Warranty policies and procedures
		3-6	Other Warranty questions
	BOSSWeb and Technology Support	4-1	Password & access
		4-2	Other Technology questions
	Training, Sales Coordinators and Vehicle Shipping.	5-1	Vehicle shipping MSO
		5-2	Sales programs and promotions
		5-3	BRP Awards
		5-4	B.E.S.T. inquiries
		5-5	Certification & BRPTI
		5-6	Technician training
		5-7	Reach regional sales coordinator directly
	All Other Services	6-1	Consumer Assistance (Dealer)
		6-2	Signage and merchandising
		6-3	COOP advertising

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 you to 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 it is covered by BEST, have the contract number available as well as 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 Reps to get technical assistance and to get a Warranty authorization number. Remember these are for DEALER USE ONLY.			
	Phone	**Fax**	**E-mail**
Rich Klein Coordinator	715 842-8886	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)			
Dennis Sawyer (English and French)			
Jeff Downs (English)			
John Lofy (English)			
Ken Gauthier (English and French)			
Mike Carter (English)			
Perry Redeker (English)			
Richard Cossette (English and French)			
Robert Wegmueller (English)			
Tom Lawrence (English)			

INTERNATIONAL DISTRIBUTOR AFTER SALES SUPPORT (SWA)

	Phone	**Fax**	**E-mail**
Robert Gariup Service Manager International	+ 41 21 318 78 60	+ 41 21 318 78 61	robert.gariup@brp.com
Ronald Hurner International Service Coordinator SWAB	+1 819 566 3086	+1 819 566 3457	ronald.hurner@brp.com

BRP AUSTRALIA

	Phone	**Fax**	**E-mail**
Riley Tolmay Service Manager	+61 2 9794 6603	+61 2 9794 6651	riley.tolmay@brp.com

BRPED DISTRIBUTORS EUROPE, MIDDLE EAST AND AFRICA

	Phone	**Fax**	**E-mail**
Helder Amaral	+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	+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
Gier Kristensen Service Manager (Norway Finland)	+47 78 44 35 00	+47 78 44 35 01	gier.kristensen@brp.com
Jorma Kukkola Service Manager (Finland, C-E Russia)	+35 8 16 3208 132	+35 8 16 3420 316	jorma.kukkola@brp.com

BRP BENELUX

	Phone	Fax	E-mail
Gerhard Bressers	+32 9 218 26 32	+32 9 218 26 49	gerhard.bressers@brp.com

BRP FRANCE

	Phone	Fax	E-mail
Rémi Campestrin Service Manager	+33 4 42 94 25 05	+33 4 42 94 25 01	remi.campestrin@brp.com

BRP SPAIN

	Phone	Fax	E-mail
Manuela Gomez Service Manager	+34 93 636 10 97 Ext. 61	+34 93 636 08 80	manuela.gomez@brp.com

BRP GERMANY

	Phone	Fax	E-mail
Andreas Klopfleisch Service Manager	+49 2174 7836 15	+49 2174 7836 22	andreas.klopfleisch@brp.com

BRP UK IRELAND

	Phone	Fax	E-mail
Lou Price	+44 1202 856 388	+44 1202 856 381	lou.price@brp.com
Vicki Hunter	+44 1202 856 387	+44 1202 856 381	vicki.hunter@brp.com

CUSTOMER ASSISTANCE CENTER NORTH AMERICA

CAC Representatives respond to customers and dealers who call, write, or e-mail the Customer Assistance Center by giving information, investigating complaints, or referring callers writers to the appropriate department within BRP.

		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

	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.
– You have 21 days to return your parts (please keep tracking number) and documents to BRP from the date your claim is accepted.
– 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
– Warranty registration form
– Work repair order
– Warranty claims
– Sublet work repair receipts
– Notes on customer calls…

NOTE: **You must keep all work orders for 3 years from the credit date. Your work orders must be able to provide key elements which describe and justify the warranty claim:**

The 4 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).
– Cost or Claim: The enumeration of parts and labor used to perform the repair and the total cost or claim (when applicable).

And

– 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 CO Warranty Parts Center 565 De La Montagne Valcourt Qc J0E 2L0	BRP CO Warranty Department 7575 Bombardier Court Wausau WI 54401	

Make sure that the correct copy of the BOSSWeb claim is included with the exact part returned and properly tagged, 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.

The B.E.S.T. service contract covers **most vehicle components and repair costs** of any covered original part that fails on the covered vehicle as a result of mechanical breakdown except for:

Breakdowns that are related to improper routine maintenance, operation or care.

Parts that are not broken or needlessly replaced.

All maintenance items unless consequential damage related to a covered item, such as, but not limited to: Air filters, fluids, lubricants, oil filters and spark plugs.

All normal wear items unless consequential damage related to a covered item, such as, but not limited to: anodes, batteries, belts, brake disks, brake drums, brake pads, bulbs, clutch pads, clutch plates, clutch sliders, clutch springs, replaceable clutch bushings, suspension slider shoes, tires and tracks.

Other items not covered unless consequential damage related to a covered item: bent shift forks, cables and cable attaching hardware, CV joint boots, external chains, external sprockets, fuses, hoses, loose securing hardware, shock absorbers and shock absorber internal or external components.

Electrical connectors and terminals and wires unless consequential damage related to a covered item.

Cosmetic damages or any body components unless consequential damage related to a covered item.

Hull or Deck or Frame damages unless consequential damage related to a covered item or unless it is a structural defect.

Damages related to acts of God.

Please refer to the back of the B.E.S.T. service contract for further details.

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NOTE: For B.E.S.T. pricing or to learn more about our B.E.S.T. protection plan, please consult the B.E.S.T. Guide on *BOSSWEB (COMCENTER DOCUMENT)*.

"WHAT'S NEWS" LETTER

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

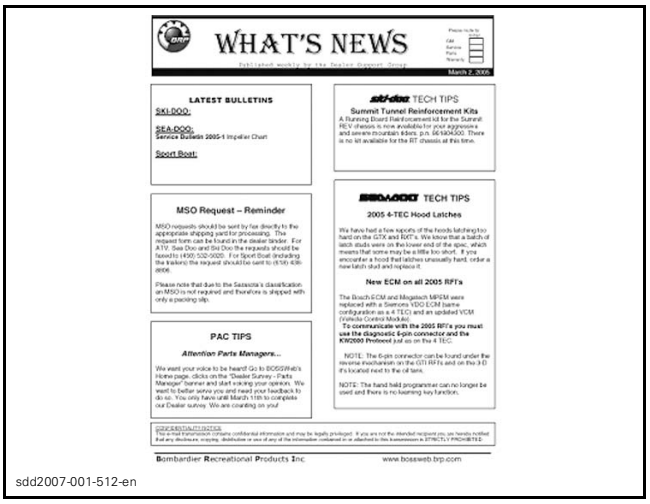
Once a week, the "What's News" letter is published on BOSSWeb. It provides the latest news from the After Sales Department.

Go to BOSSWeb (www.bossweb.brp.com).On the home page, select the "What's News"

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

This is an example of the What's New letter.

NOTE: All archived What's News publications are available though the *COMCENTER* section of BOSS-Web. It can be found under *COMCENTER DOCUMENT* and by choosing "What's News" in the document type drop down box.


WHAT'S NEWS

Published weekly by the Dealer Support Group

March 2, 2006

LATEST BULLETINS

SKI-DOO:

SEA-DOO:
Service Bulletin 2005-1 Impeller Chart

Sport Boat:

ski-doo TECH TIPS

Summit Tunnel Reinforcement Kits

A Running Board Reinforcement kit for the Summit REV chassis is now available for your aggressive and severe mountain riders. p.n. 861404300. There is no kit available for the RT chassis at this time.

MSO Request – Reminder

MSO requests should be sent by fax directly to the appropriate shipping yard for processing. The request form can be found in the dealer binder. For ATV, Sea-Doo and Ski-Doo the requests should be faxed to (450) 532-2920. For Sport Boat (including the trailers) the request should be sent to (519) 436-4956.

Please note that due to the Sassiola's classification an MSO is not required and therefore is shipped with only a packing slip.

SEADOO TECH TIPS

2005 4-TEC Hood Latches

We have had a few reports of the hoods latching too hard on the GTX and RXT's. We know that a batch of latch studs were on the lower end of the spec. which means that some may be a little too short. If you encounter a hood that latches unusually hard, order a new latch stud and replace it.

New ECM on all 2005 RFI's

The Bosch ECM and Magetech MP6M were replaced with a Siemens YDO ECM (same configuration as a 4 TEC) and an updated VCM (Vehicle Control Module).

To communicate with the 2005 RFI's you must use the diagnostic 6-pin connector and the KW2000 Protocol just as on the 4 TEC.

NOTE: The 6-pin connector can be found under the reverse mechanism on the GTI RFIs and on the 3-D it's located next to the oil tank.

NOTE: The hand held programmer can no longer be used and there is no learning key function.

PAC TIPS

Attention Parts Managers...

We want your voice to be heard! Go to BOSSWeb's Home page, clicks on the "Dealer Survey - Parts Manager" banner and start voicing your opinion. We want to better serve you and need your feedback to do so. You only have until March 11th to complete our Dealer survey. We are counting on you!

CONFIDENTIALITY NOTICE

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Bombardier Recreational Products Inc www.bossweb.brp.com

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REPORTS ON PERFORMANCE AND QUALITY

RPQ

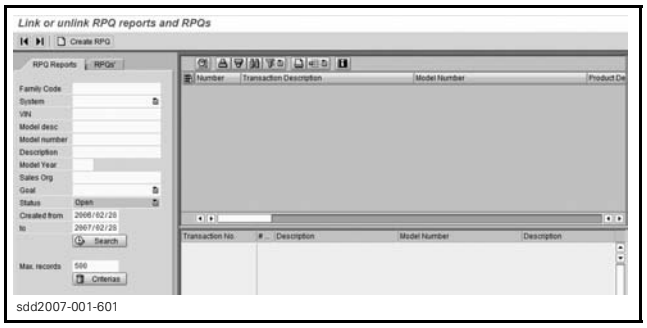
RPQ is the method BRP uses to know what is happening in the network.

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?

Was the PDI Check List properly filled and filed? Was it signed by the customer?

Legal protection

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

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:

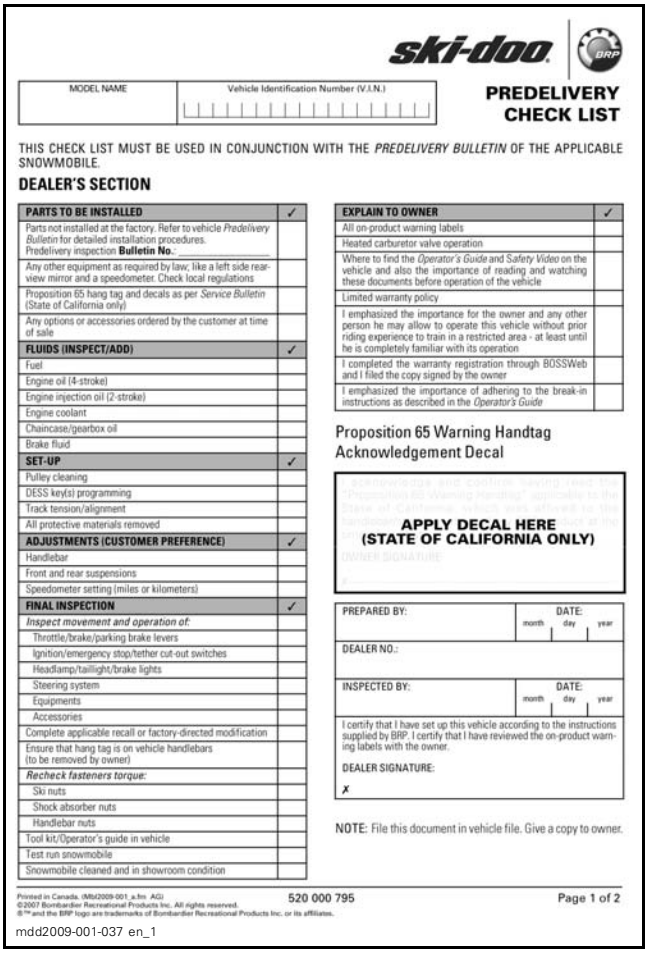
– all operators and safety guides
– his sales information
– the PDI sheet
– proof of registration

Where do I find this document?

It is included with every BRP recreational vehicle or in BOSSWeb (www.bossweb.brp.com) Comcenter tab Technical Publications.

To know 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

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BRP ELECTRONIC PARTS CATALOG

PARTSMART VERSION 8.6.46

You have already received you new electronic *PARTS CATALOG PART SMART* version 8.4.46!

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 8.4.46, or if a new license key has been issued for some other reason.

Installation Improvements

Server-only Installations. When 8.6.46 is installed on the Server, the client work stations will get the newest application without any additional action required. All Client work stations must exit PartSmart before running the update on the server.

NOTE: If you are using the PartSmart Updater feature, when you have completed installing PartSmart 8.6.46, 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 select a catalog which requires an updated key.

Catalog Install

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

New Feature: Thumbnails

With this release, you will have the option of viewing "previews" of assembly diagrams using the new Thumbnail feature. This feature allows you to see small preview pictures of the model before you open the full diagram. This will streamline the diagram selection process significantly.

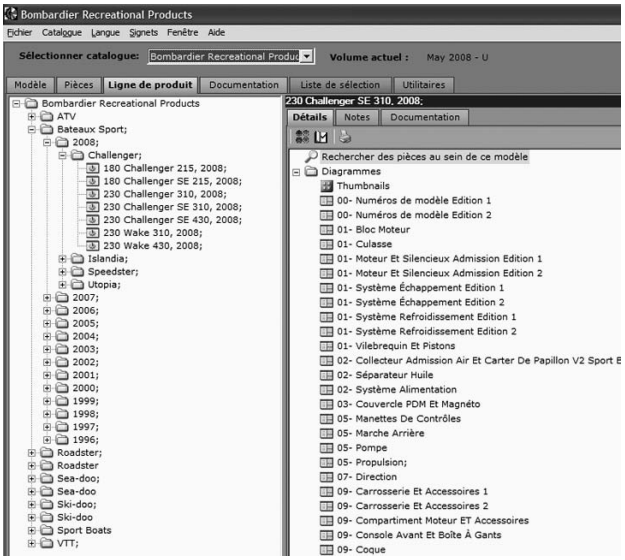
The availability of Thumbnails is limited to models that have fewer than 100 diagrams by default to maintain peak performance levels. For models that have more than 100 diagrams, the Thumbnail option has been turned off.

How to use Thumbnails:

Select the model, then open Thumbnails from the Diagrams list.

To view the full assembly diagram, with the Parts List, double click on the Thumbnail image.

To change the size of Thumbnails, right click on Thumbnail image and select small, medium or large.



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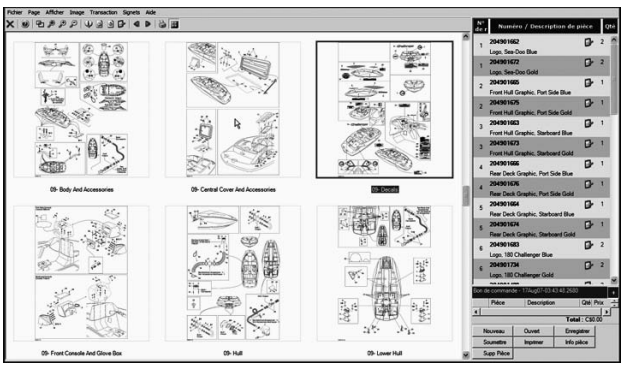
To return to the Thumbnail screen from an assembly diagram, click on the Thumbnail Icon.

To move from one Thumbnail to the next, you can use:

– the toolbar NEXT and Previous buttons or
– the keyboard Up, Down, Left, Right arrow keys or,
– the mouse and click on the Thumbnail.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Search Speed Improvements

Response times have been improved for parts searches in catalogs with large data sets. The most noticeable increase in speed is on Client work stations.

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 (4-2).

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

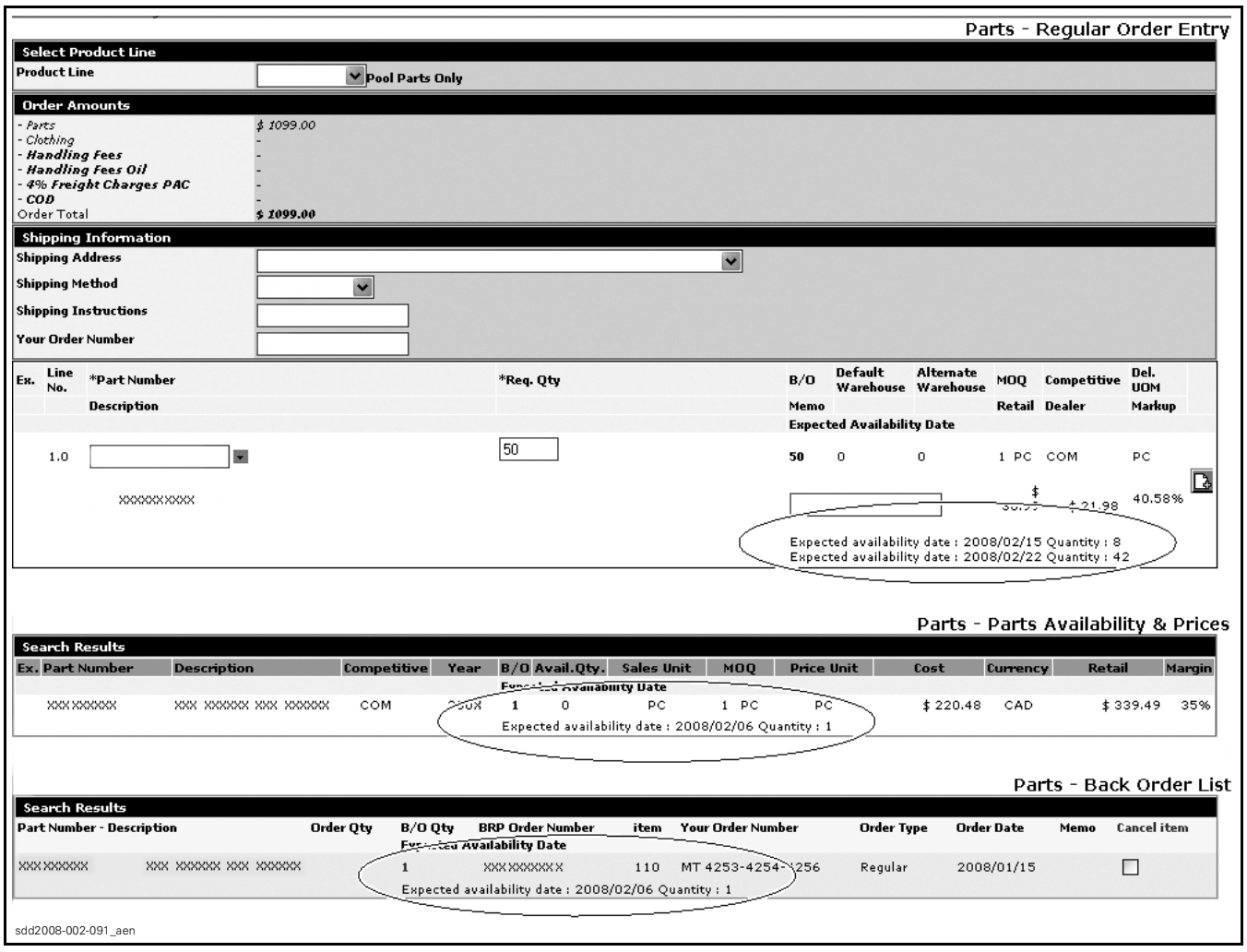
For assistance contact Technology Support	Canada	USA
Phone	800 361-9980 (4-2)	800 361-9980 (4-2)

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 : You must choose a product line while consulting this screen to avoid error messages such as: Error! 14: Material not saleable".



BOMBARDIER RECREATIONAL PRODUCTS TRAINING INSTITUTE

THE FOUR STEPS TO TECHNICIAN TRAINING

1. Getting Started

How to become a better BRP service technician

Sign on 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 autoshipped 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 on the same series). Complete all the exams in the Technician Level of your choice on BRPTI. Passing scores of 75% qualifies you for the BRP Technician Level.


vdd2008-001-052

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 # 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 # 0070 to see the latest information.

BOOK AND DVD QUICK PN REFERENCE

TECHNICAL UPDATE BOOKS

Technical Update Books	English	French
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
2004 Ski-Doo Technical Update Book	219 600 010	219 600 009

RACING HANDBOOK

	English only
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.**

REV-XP

mdd2009-001-024

ALL REV-XP SUMMIT'S

What's New:

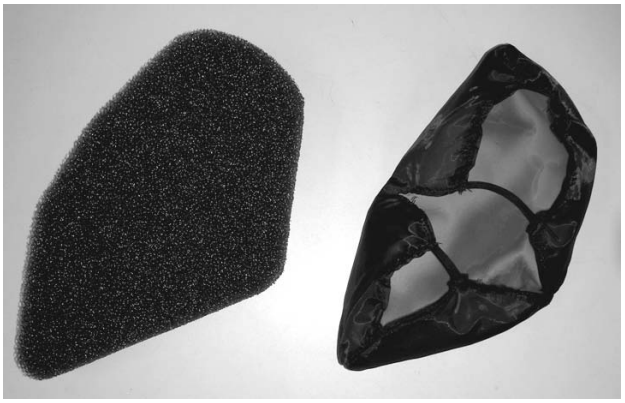
Air intake pre filter.

Why:

Re-moveable pre filter with a foam insert designed to be flush with hood rather than recessed.

This reduces plugging by ice and snow build up on the filter element.

NOTE: A spare can be carried and quickly exchanged in severe conditions.



mbg2008-017-502

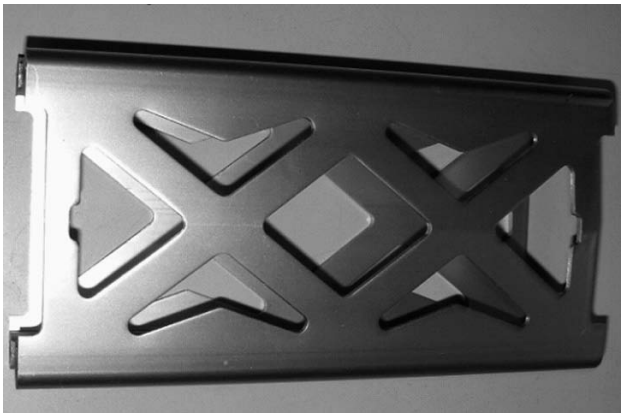
REV-XP AND REV-XR'S WITH RISER BLOCKS

What's New:

Riser blocks.

Why:

Now anodized to resist corrosion and offer better finish.



mdd2009-001-055

ALL 146" SUMMIT'S

What's New:

Gear ratio

Why:

Ratio is changed to reduce overall gearing and improve belt life in deep snow conditions.

MY 2008-23-/45

MY 2009- 21/45

NOTE: MY 2008 and 2009

154" Summit =21/45

163" Summit= 21/49

For extremely aggressive deep snow riding 154" Summit could be geared lower. example: 21/49 or 19/45.

mdd2009-001-234

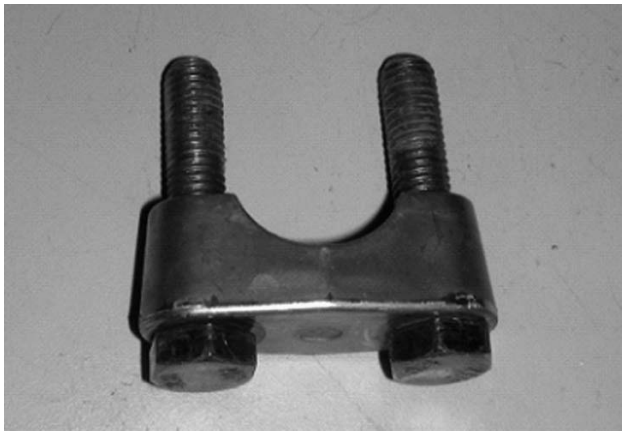
ALL REV-XP'S AND REV-XR'S WITH RISER BLOCKS

What's New:

Handlebar riser mounts.

Why:

Thicker casting for improved strength.



mdd2009-001-056

REV-XP AND REV-XR X PACKAGES AND TNT

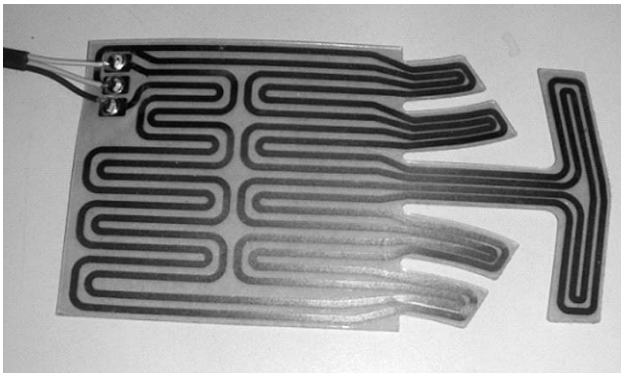
What's New:

Hand warmer elements.

Why:

Improved solder connections for reliability and now both elements are the same.

Now a single part number fit's both sides, when the left element is used on the right side the wires will run through the throttle block bracket for improved reliability and less chance of connection breakage.



mdd2009-001-054

ALL REV-XP'S

What's New:

Coolant tank.

Why:

A wider sealing surface for pressure cap reduces possibility of coolant loss.

mdd2009-001-062

ALL REV-XP'S

What's New:

Oil tank.

Why:

An improved design of thread's and a more positive stop reduce the possibility of thread distortion and potential oil leakage.

mdd2009-001-063

ALL REV-XP'S

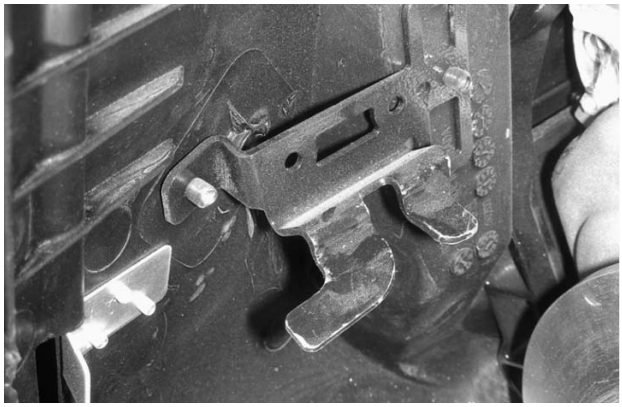
What's New:

Belt guard front support bracket.

Why:

Bracket is now angled to allow easier installation of belt guard on vehicle.

Guard can be installed at an angle to drive pulley and then lifted over both pulleys to attach rear pin.



mdd2009-001-053

ALL REV-XP'S

What's New:

Belt guard positioning pin hole and grommet.

Why:

To ease guard installation and alignment the positioning pin hole is now elongated, and a new shaped urethane grommet is used to ensure it stays securely in place.

mdd2009-001-052

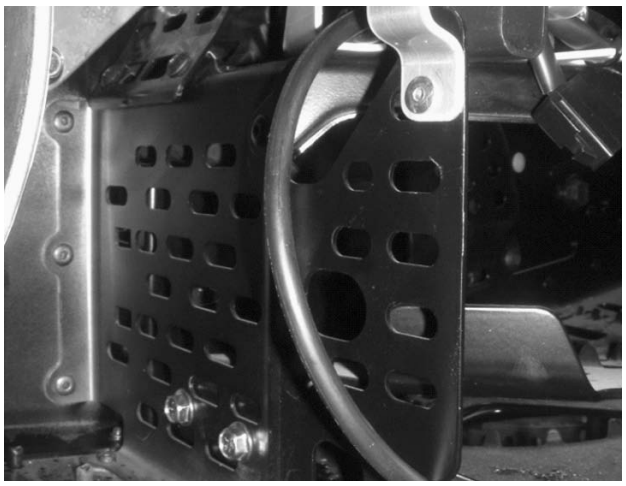
ALL REV-XP'S

What's New:

Left footrest assembly.

Why:

Support is now straight rather than angled back to allow room to adjust pulley clicker and / or change belt.



mdd2009-001-058

ALL REV-XP AND REV-XR MODELS

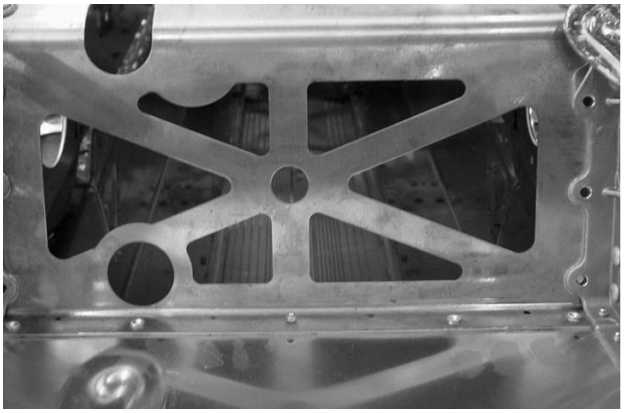
What's New:

Front heat exchanger rivets.

Why:

Stronger rivet is used to ensure long term durability.

2009 rivet is retrofitting to 2008 models.



mdd2009-001-083

ALL REV-XP AND REV-XR E TEC'S WITH ELECTRIC START STANDARD

What's New:

No recoil starter.

Why:

All 600 E-Tec's with factory installed electric start will not have a recoil starter.

The E-Tec's unique capability to start within half a revolution of the crankshaft allows the removal of the back up recoil starter to save weight.

An emergency rope and clip are included in the tool kit and can be used on the drive pulley if ever needed.

NOTE: An accessory recoil kit is available from PAC if a customers requires this item (P/N 860 200 111).

mdd2009-001-087

RUNNING CHANGE ON MOST REV-XP'S

What's New:

Rewind rope guide.

Why:

Some rewind rope chaffing near the handle has been noted in the field , this redesigned guide should reduce the possibility of that.

NOTE: For 2008 models refer to troubleshooting and tech tip section of book for solutions.

mdd2009-001-086

ALL REV-XP SUMMIT'S

What's New:

Rear bumper bolts (P/N 250 000 223).

Why:

All rear bumper bolts are now round headed rather than hex. This is to reduce fraying of the track edges due to contact with bumper bolts.

mdd2009-001-090

ALL REV-XP AND REV-XR PREMIUM GAUGES

mdd2009-001-180

What's New:

Updated Premium gauge.

Why:

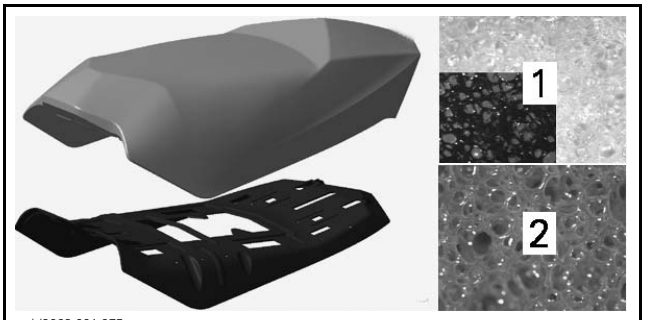
Improvements to the E prom internal memory chip and updated magnetic Mode and Set buttons correct malfunctions that occurred last season.

The fuel gauge is also more accurate due to internal calibration changes. The digital tachometer is now accurate to + and - 100 rpm increments, this means the 2009 800R calibration rpm is now 8200+- 100 rpm. The altitude function is accomplished via the ECM's atmospheric pressure sensor reading used for fuel calibration mapping. It now registers in + - 100 meter / 200 ft increments.

No maximum rmp reading will be available. This feature has been removed due to it's sensitivity. Variations in engine rpm during shift out or over shoot, or even vehicle's unloading off small bump's caused abnormally high readings.

Many customers were adjusting the TRA clutch based on these erroneous readings. Hence this function has been removed.

ALL REV-XP AND REV-XR MODELS



mdd2009-001-075_a

What's New:

Seat foam material.

[1] Low density 50 kgm^3

[2] SHD density 80 kgm^3

Why:

All 2009 model will uses SHD (Super High Density) foam as 2008 Adrenaline models.

This type of foam is softer initially for improved rider comfort, but is more resistant to bottoming or creating a "pocket".

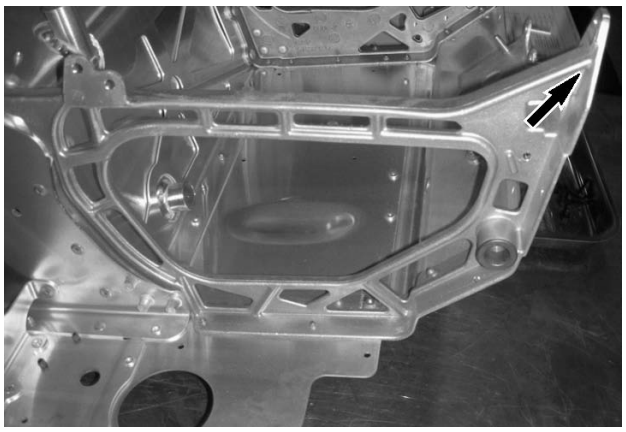
ALL REV-XP'S

What's New:

E module castings.

Why:

Slightly thicker front and rear attach points for improved durability under high stress conditions.



mdd2009-001-146 _a

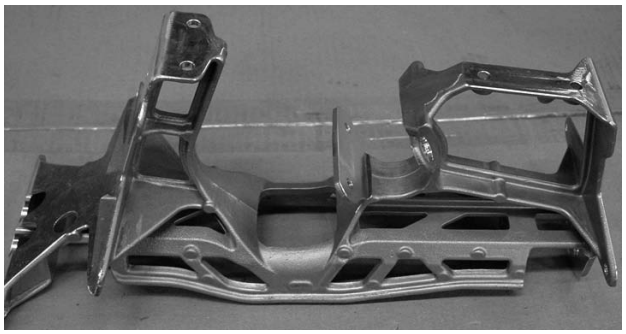
ALL REV-XP AND REV-XR VEHICLES

What's New:

Central casting.

Why:

Reinforced at front and rear mounting points for increased strength. This change in thickness requires longer bolts be used to attach this part if used on an 2008 vehicle.



mdd2009-001-138

RUNNING CHANGE IN ALL REV-XP'S

What's New:

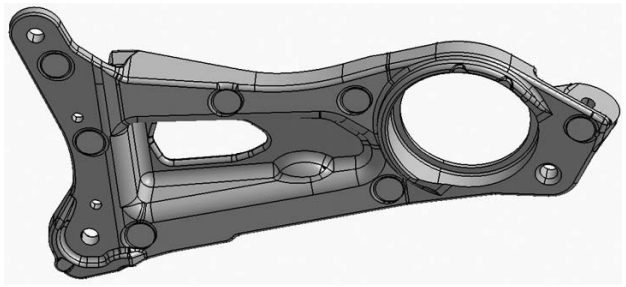
QRS support.

Why:

The casting has been redesigned to be stronger and allow less flex.

The torque specification has also been raised to 25 lb/ft, 35 N/m.

This ensures more accurate pulley alignment even under heavy loads.



mdd2009-001-139

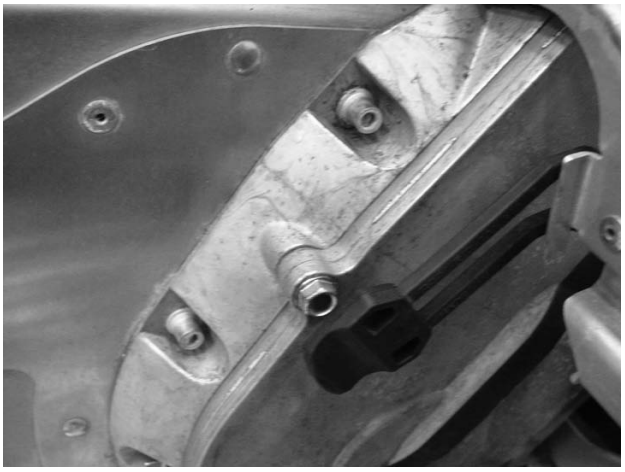
ALL REV-XP AND REV-XR VEHICLES

What's New:

Magnesium chaincase mold.

Why:

The mold has been modified and updated to improve the consistency and straightness of these cast magnesium parts. The end result is a more accurate fit between cover and case.



mdd2009-001-137

ALL REV-XP'S ALL REV-XR'S

What's New:

Chaincase cover screws.

Why:

To reduce possibility of breakage new self tapping screws with new plating are used.

2008 part number substitute to 2009 part number.

mdd2009-001-065

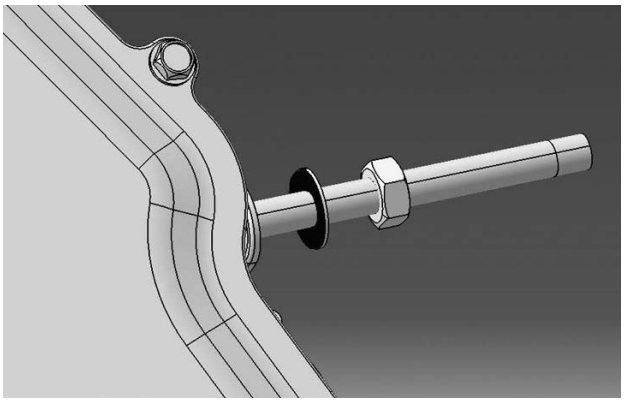
ALL REV-XP'S AND REV-XR'S

What's New:

Chain tensioner bolt sealing washer (P/N 250 200 100).

Why:

A rubber coated steel washer is used under chain tensioner locking nut. This will ensure oil tightness of this adjuster.

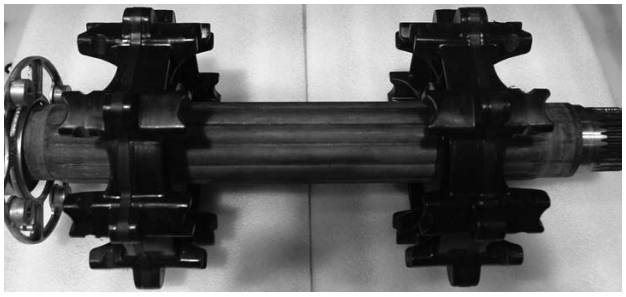


mdd2009-001-136

ALL REV-XP AND REV-XR MODELS

What's New:

Part number for hydro-formed driveshaft.


mdd2009-001-093

Why:

A more rigorous quality control inspection is being performed at the supplier for the welding process, the proper metallurgy for the hydro-formed tubing, and lastly a 100% highly sophisticated ultra sound inspection of the finished product.

This is to ensure all drive axles are delivered as designed and tested.

The new (P/N) is simply for tracking purposes.

ALL REV-XP AND REV-XR MODELS

What's New:

Brake pad spring tab.


mdd2009-001-236

Why:

To ensure as pads wear with time, they do not retract so lever "feel" is solid and instantaneous.

ALL 120" REV-XP EXCEPT MXZ ADRENALINE, ALL 120" REV-XR'S AND SPORT PACKAGE

What's New:

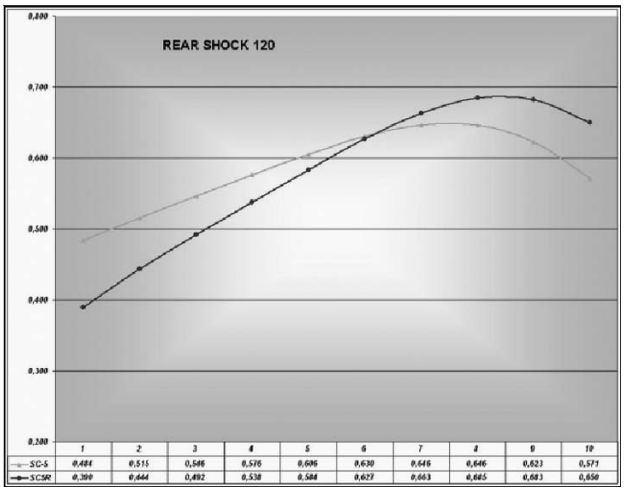
SC5's new rising rate motion ratio.

Why:

To greatly improve "ripple" bump absorption and yet resist bottoming in the larger "G " bumps.

The end result is a more comfortable ride with no loss in capacity in the big bumps.

This is achieved by stroking the shock less or slower in the first few inches (cm) of travel and then increasing the shock's speed or motion ratio in the last few inches (cm) of travel.



mdd2009-001-070

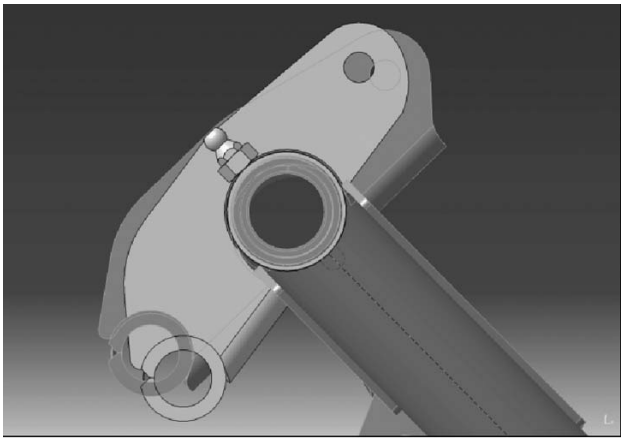
ALL 120" AND 137" MODELS EXCEPT MXZ ADRENALINE

What's New:

Rear arm shock and motion ratio rod positioning.

Why:

Re positioned to slow the shock stroke in the first few inches (cm) of travel and then speed it up in the last few inches (cm) of rear suspension travel.


mdd2009-001-073

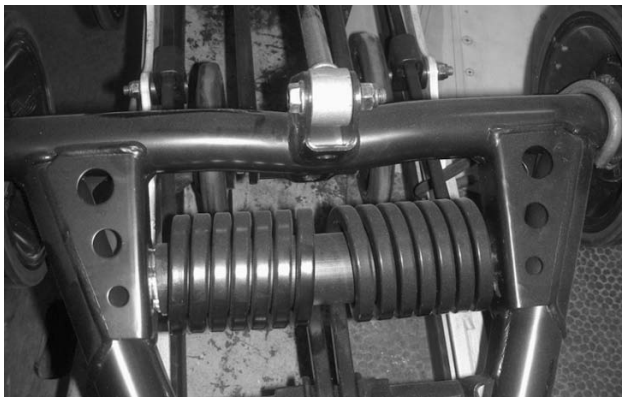
ALL 120" REV-XP 'S AND REV-XR'S EXCEPT MXZ ADRENALINE

What's New:

Rear arm.

Why:

New "curved" rear arm on 120" models for proper location of shock eye and motion ratio rods for "rising rate" arm geometry.



mdd2009-001-060

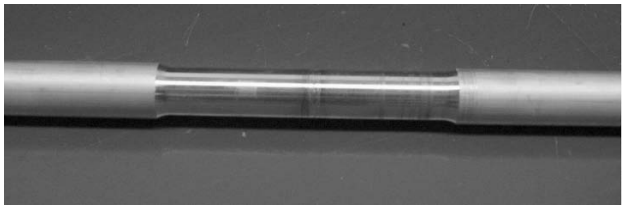
ALL 120" LONG REV-XP'S AND REV-XR'S EXCEPT MXZ ADRENALINE

What's New:

120" rear cross shaft.

Why:

Center section "relieved" or machined for proper clearance with new rising rate arm geometry.



mdd2009-001-066

ALL MXZ RENEGADES AND GTX'S

What's New:

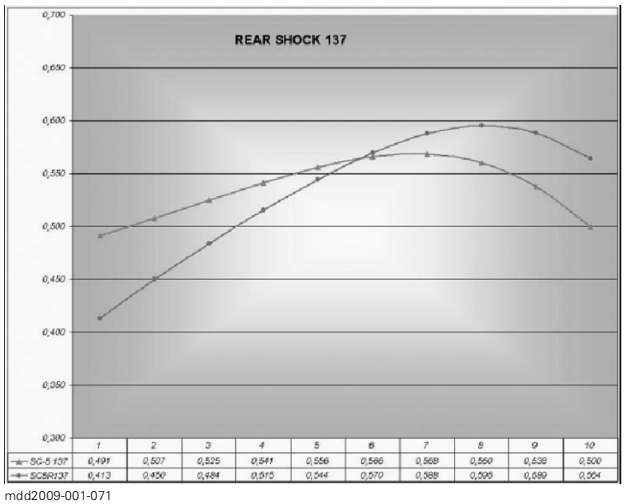
137" motion ratio curve.

Why:

To allow a smoother ride in the ripple bumps and a greater resistance to bottoming in the largest bumps.

The shock speed is varied with the rear suspension travel.

Less shock speed initially and more shock speed near the end of the rear suspensions travel.



mdd2009-001-071

ALL 137 REV-XP'S AND REV-XR'S

What's New:

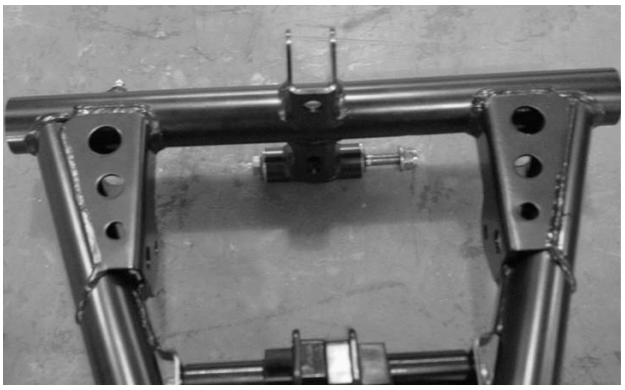
137" rear arm.

Why:

New "rising rate" rear arm geometry for improved ride comfort.

This involves relocating the shock mount and motion ratio rod mounting points.

The 137" SC5 rear shock is longer so the shock rod "clears" the center shaft without having to have a "curve in it like 120 SC5 rear arm.



mdd2009-001-067

ALL 120", 137" AND SPORT PACKAGE VEHICLES EXCEPT MXZ ADRENALINE

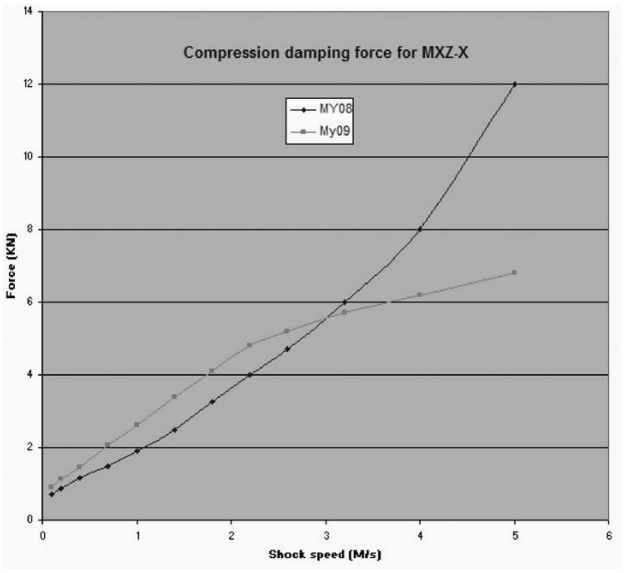
What's New:

Rear shock valving.

Why:

To optimize the ride with the new rising rate rear arm design.

Specific calibrations in shock specifications section of book.



mdd2009-001-072

ALL REV-XP'S

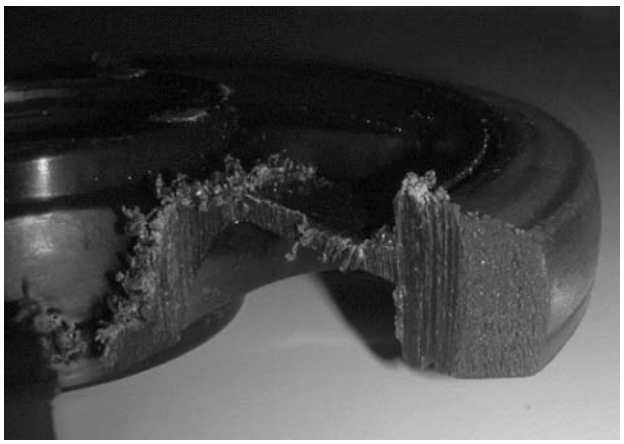
What's New:

Rear idler wheels.

Why:

Increased rubber thickness over molded plastic wheel to improve damage resistance and rubber retention.

2008 part number substitute to 2009 part number.



mdd2009-001-059

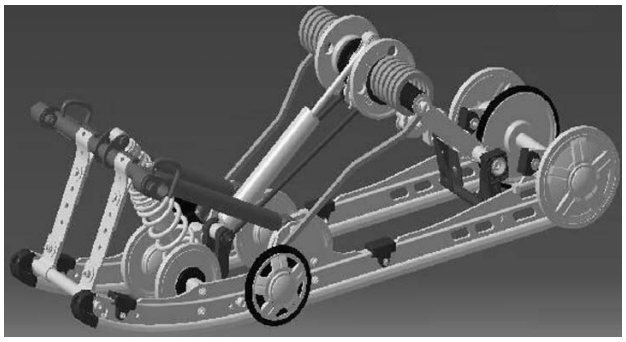
ALL MXZ X AND TNT PACKAGES

What's New:

3 rear idler wheels.

Why:

For improved durability under severe riding conditions.



mdd2009-001-181

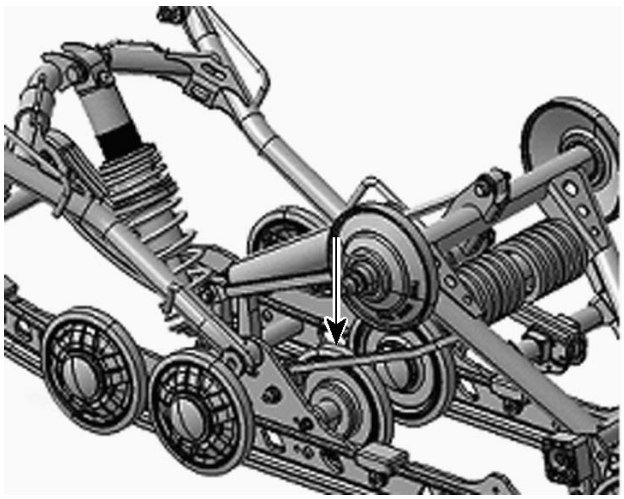
ALL TNT REV-XP AND REV-XR MODELS

What's New:

Third set of center idler wheels added and track is now guide clipped every window.

Why:

To reduce harmonic resonant vibrations in track and suspension at certain speeds.



mdd2009-001-182_a

ALL REV-XP 800 R EQUIPPED MXZ'S, RENEGADE'S AND SUMMIT'S

What's New:

TRA VII roller bushing material.

Why:

A new extremely vibration resistant bushing material is used in the rollers "SCP" made by Dupont™.

This material has excellent resistance to wear from heat and vibration.


mdd2008-002-077

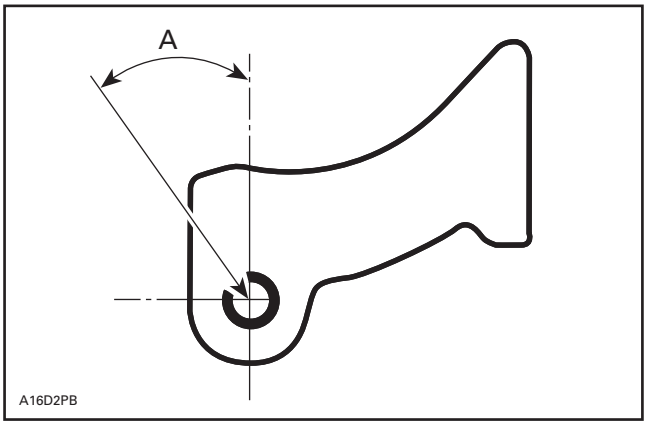
FOR NORTH AMERICAN SUMMIT 600 E-TEC AND 800 R'S

What's New:

TRA drive pulley ramps. part number 600 E-Tec-"440" (P/N 417 223 096), 800R-"441" (P/N 417 223 098).

Why:

A new profile was developed with a smoother engagement, more consistent axial force, and rpm. These new profiles will also reduce drive belt slippage and pull harder through shift out.



A16D2PB

SUMMIT 800 R REV-XP'S AND REV-XR'S

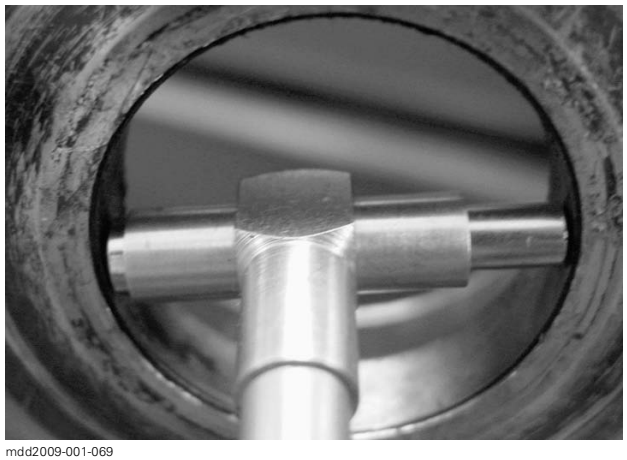
What's New:

New heavy duty bushing material.

Why:

As a running change on all 800 R's will use a bushing of a new material.

This material has excellent resistance to wear from vibration and is well suited for the extreme usage in the mountains.


mdd2009-001-069

ALL WITH TRA VII

What's New:

Spring cover

Why:

Bushing is "pre-sized" to reduce sticktion.

Previously this occurred naturally during break in, shift rpm is now more consistent as bushing is correct "fit" from new.

Bushing is more securely located in cap to ensure retention.

mdd2009-001-235

SUMMIT 600 E-TEC AND SUMMIT 800 R MODELS

What's New:

2 QRS reverse angle cams.

Why:

The Summit 600's are now equipped with a 41-45 degree cam.

The Summit 800R's now use a 43-47 degree cam.

These reverse angle cams give improved belt life and reduce drive belt operating temperatures by producing less belt side force, or "squeeze" on the belt.

Another major benefit is improved shift rpm consistency when going from powder to on trail with this reverse angle design. When climbing in deeper powder the track speeds are generally limited to the 40 50 mph range, in this speed range the smaller cam angle is used resulting in good back shifts and rpm at all times.

When leaving the powder and going on trail the speed range can be greater, 60-80 mph, and in these higher speed ranges the driven is now shifted to the larger cam angle, resulting in less side force, reduced belt temperatures, and the rpm does not vary. In other words the need to make TRA "clicker" adjustments when going on or off trail is greatly reduced.

mdd2009-001-081

"FLATLAND" REV-XP'S AND REV-XR'S "TNT, MXZ. GSX, GTX AND RENEGADE'S

What's New:

QRS dual angle cam.

Why:

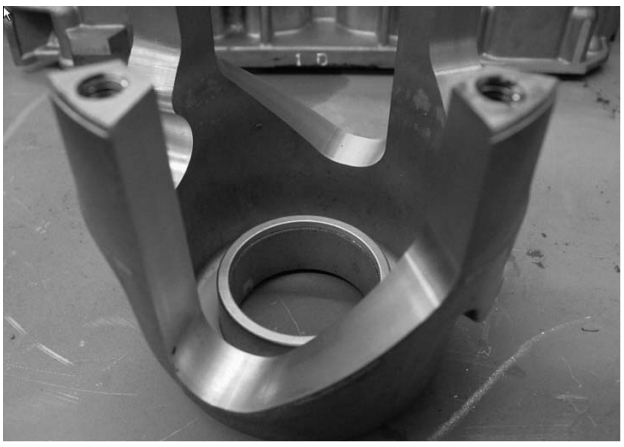
Dual "normal" angle cams are used on most trail vehicles in 2009 to improve acceleration out of the hole and reduce belt side force, lowering belt operating temperatures, and improving belt life.

Cam angles vary with engine size, track profile heights, and length.

Refer to transmission *SPECIFICATION SECTION* in rear of book for exact angles for specific vehicles.

Examples:

– 1200 MXZ, TNT =50-44
– 1200 Renegade= 47-44
– MXZ 800= 47-44.



mdd2009-001-082

MXZ 800 R AND RENEGADE 800R

What's New:

QRS driven spring.

Why:

Green 800 NM spring instead of Violet 1000 NM.

This change will decrease engine braking, allowing more of a "free" feeling upon deceleration.

It also helps reduce belt temperatures.

mdd2009-001-089

ALL REV-XP AND REV-XR MODELS

What's New:

QRS adjuster (P/N 415 129 409).

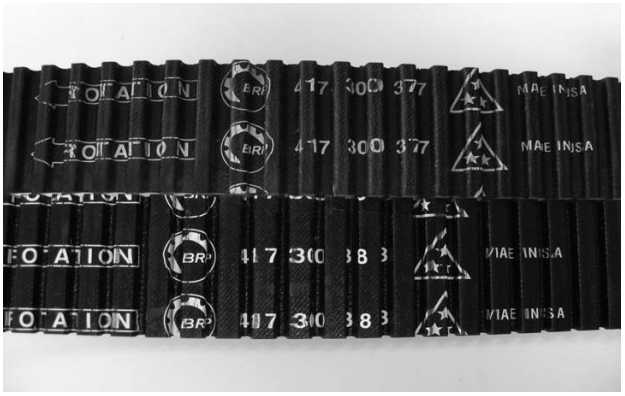
Why:

An improved design to allow easier and more secure belt changes and deflection adjustments. This adjuster will retrofit on all REV-XP's. It is cast in aluminum and requires a special tool to install to proper torque spec. Once installed belt changes are easily performed without affecting belt deflection. Two 6 mm set screws with locking nuts are used for belt deflection adjustments. A threaded tool is used to open pulleys similar to HPV pulley in the past.

Parts to be available this fall.

mdd2009-001-548

ALL LIQUID COOLED REV-XP AND REV-XR MODELS



mdd2009-001-158

What's New:

Drive belts.

Why:

Two new part numbers are being used on production units this year.

The (P/N 417 300 166) belt is being replaced on many models by **(P/N 417 300 383)**. This new belt uses the same compound as the "166", is the same overall length, however it is 1.5 mm wider. This will ensure a proper fit and give more usable belt deflection adjustments in the REV-XP's QRS (Quick Respond System) driven pulley. The 166 belt will still be available belt and should be used in ZX's and REV's with the HPV driven pulley.

The **417 300 377** drive belt introduced mid season as a heavy duty replacement for the Summit 800R is now standard equipment on the 2009 Summit 800R. This belt has a very hard compound that resists heat deformation and cord "pop" out under severe riding conditions. It is the same overall length as a "166" drive belt and 1.5 mm wider. This again allows a greater range of belt deflection adjustment in the QRS driven pulley. This use of this belt may require slight clutch calibration adjustments to maintain proper shift rpm. Normally the rpm will drop 100-200 rpm requiring a TRA "clicker" adjustment to maintain optimum shift rpm. This belt's rubber compound will have a small but noticeable effect on shift rpm between a cold and warm belt. The transmission specification section in the rear of this book denotes which belt is used on which models.

REV-XR

mdd2009-001-026

REV-XR

What's New:

REV-XR body style.

Why:

– Refined design
– Radical shape
– Slick details.


mdd2009-001-184

TNT, MXZ, RENEGADE, GSX LIMITED WITH 1200 AND GTX LE, SE, GSX E-TEC

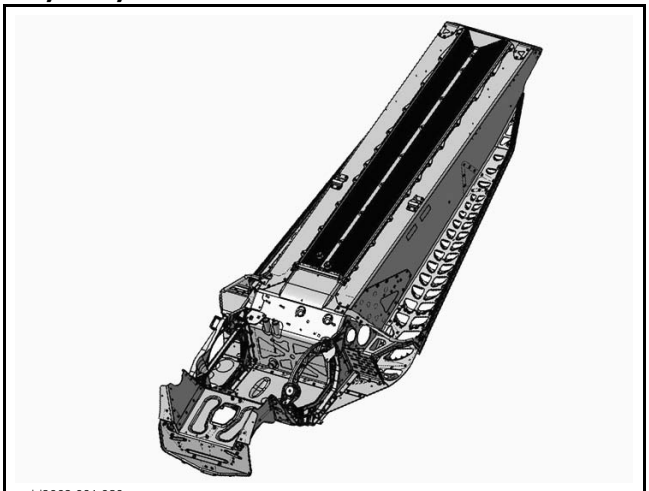
What's New:

REV-XR chassis variation.

Why:

To create a more "R"efined platform with a wider body and windshield for better wind protection and a more comfortable platform for high mileage riders.

The REV-XR uses the REV-XP suspension and tunnel modules with a newly designed "E" or engine module to fit the 1200 Rotax .The REV-XR's equipped with 600 E Tec engines uses the same module as the REV-XP.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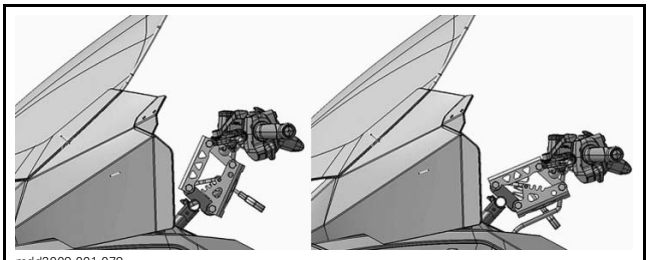
GTX SE

What's New:

Adjustable handlebar system.

Why:

To allow 4 different position's for handlebar height.


mdd2009-001-079

GTX SE

What's New:

Comfortable heated seat for driver and passenger.

Why:

– Ultimate long ride comfort for all winter conditions
– Passenger higher for better ergonomics
– More comfortable and luxury look.

mdd2009-001-002

GTX SE

What's New:

80 liters of storage.
– 2 sealed lateral luggage
– 1 tunnel bag
– 1 pouch under seat.

Why:

More protection.
– Better than previous REV
– Better than competition
– More comfortable
– Advanced side panels deflectors
– Much nicer design to fit with the vehicle esthetic (injected parts)
– Almost double the internal volume of the Rev bags.

mdd2009-001-001

GTX

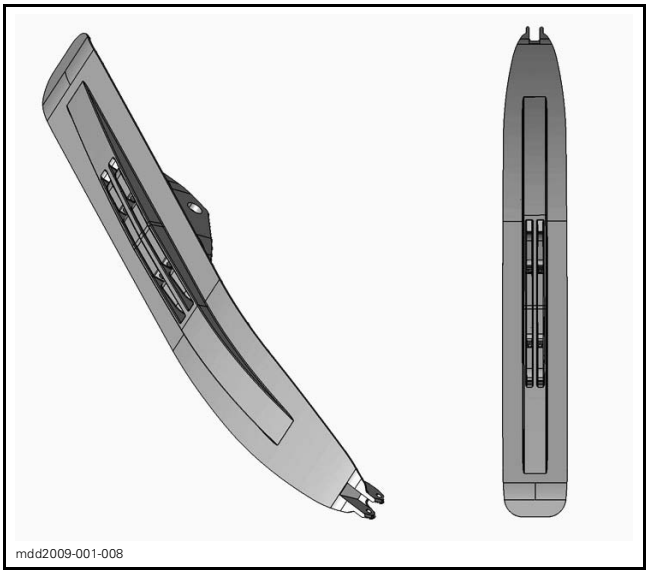
What's New:

Pilot SL ski's.

Why:

New Pilot SL greathly reduces darting and minimizes the effor to steer.

It has a dual wear rod design and a larger center keel with squared sides



GTX 1200 ONLY

What's New:

Stabilizer bar.

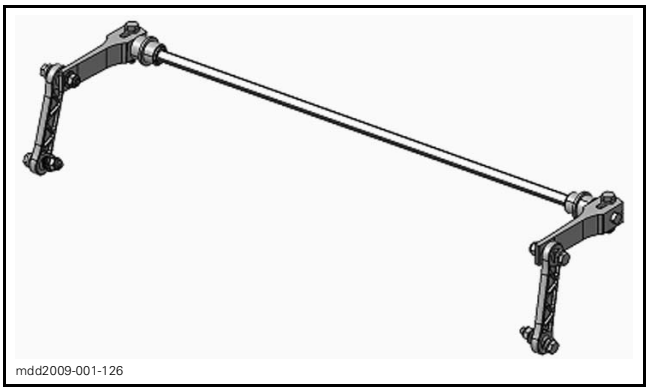
Why:

New stabilizer bar 9,14 mm versus 8,3 mm compared to REV-XP.

43% more rigid to give improved handling with all two passenger sleds.

Less roll.

Less ski lift.



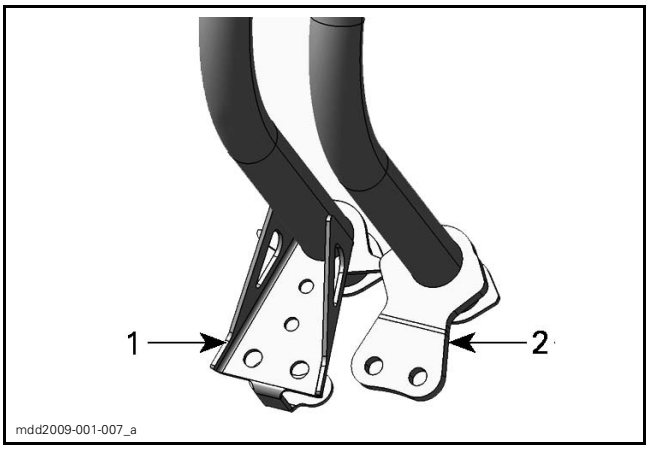
ALL 1200 EQUIPPED REV-XP AND REV-XR VEHICLES AND ALL GSX AND GTX'S

What's New:

Steering column.

[1] 2008 execution.

[2] 2009 execution.



Why:

A shorter and angled steering pivot arm eases steering effort by 25%.

This only reduces turning radius by 6 degrees. The reduced angle is needed to keep bump steer to a minimum.

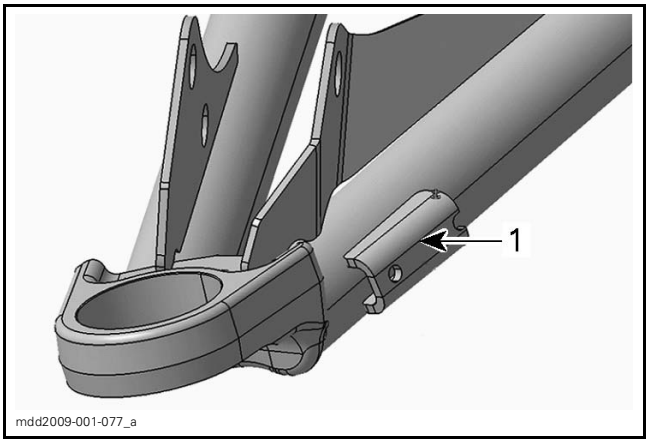
It still allow excellent cornering capacity.

ALL 1200 EQUIPPED REV-XP AND REV-XR VEHICLES AND ALL GSX AND GTX'S.

What's New:

Lower suspension arm steering stop.

[1] Steering stop welded to lower suspension arm to make contact with ski spindle.



Why:

To prevent damage to steering system while pulling on 1 ski by customer. This is due to new shorter steering radius on GSX and GTX.

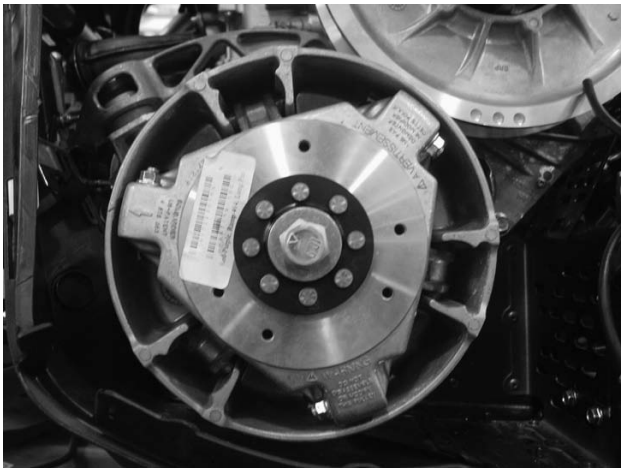
ALL 1203 EQUIPPED VEHICLES

What's New:

TRA IV.

Why:

The TRA IV without cushion drive is the proven choice of primary pulley designs for our high torque 4 stroke engines.



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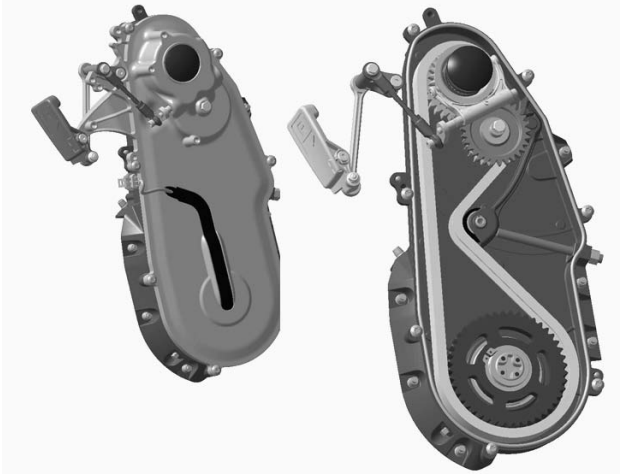
MXZ RENEGADE AND 1203 EQUIPPED REV-XR'S.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What's New:

Lightweight mechanical reverse transmission system.

Why:

Since 4 stroke engines are not as easily adaptable to running in reverse as our 2 strokes engines are, RER was out of the question with the introduction of the 1203 in the REV-XR chassis.

A new high strength lightweight mechanical reverse system was designed. Lightweight and the reduction of parts were two of the main priorities.

The idea is to move the traditional shiftable gear from the lower sprocket to the upper sprocket. Doing this reduces the torque loading and weight on the shiftable gear by approximately 50%.

The basic shift mechanism is very similar to the system used in the V 810 reverse transmissions. It uses an idler gear and a shifting fork for engaging reverse.

The manual version has two detented positions, Forward and Reverse, between these two there is actually a non detented neutral position. This is simply a point between forward and reverse where the idler gear is not engaged in either position. The electro mechanically controlled reverse has an auto lock out feature to not allow shifting while the vehicle is moving.

Maintenance: chain case oil should be changed annually and the manual chain tensioner adjustment is identical to the non mechanical REV-XP's system.

There is a level plug on fitted the rear side of the case. Approximate oil capacity to the check plug is 8.5 fl oz 250 cc.

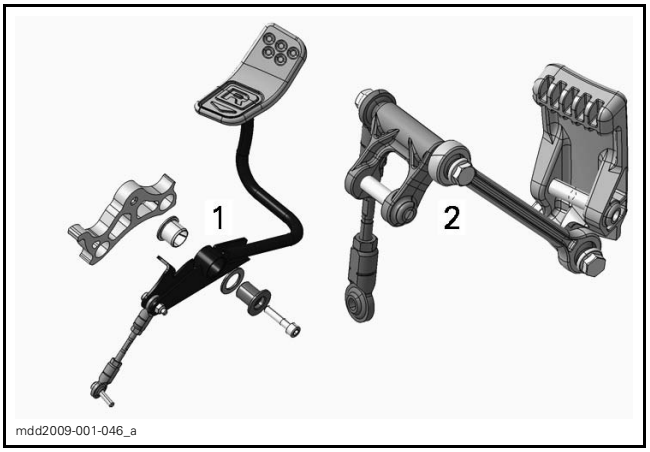
REV-XR

What's New:

Reduction of parts for mechanical activation.

[1] 8 parts for V810.

[2] 4 parts for REV-XR.



Why:

Weight of mechanical shift system for RF chassis = 7,9 lbs (2.9 kg).

Weight of mechanical shift system for REV-XR chassis = 4,15 lbs (1.5 kg).and it is a stronger system overall.

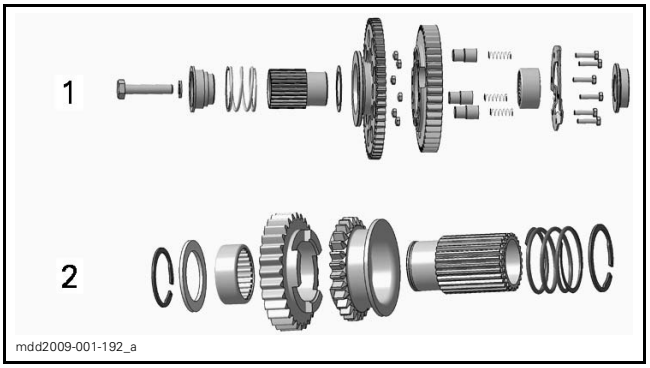
REV-XR

What's New:

A major reduction in number of parts and weight of movable gears.

[1] 29 parts for V810.

[2] 8 parts for REV-XR.



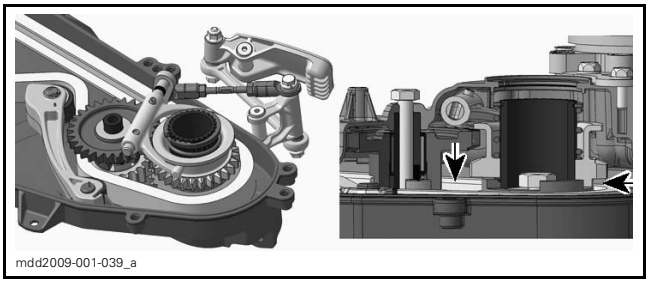
Why:

Weight reduction evolution and an overall stronger and more reliable system.

REV-XR

What's New:

Forward position power flow.



Why:

Weight reduction evolution.

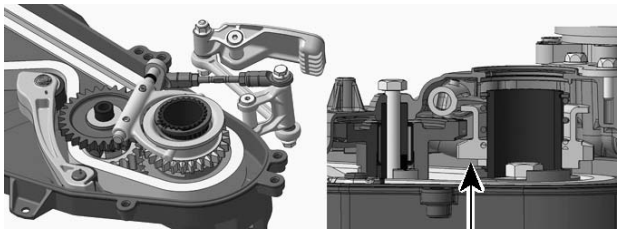
REV-XR

What's New:

Neutral position.

Why:

Weight reduction evolution.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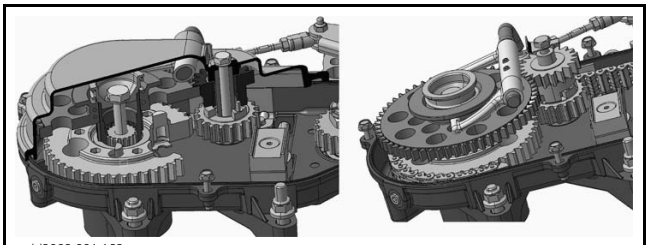
REV-XR

What's New:

Reverse position power flow

Why:

Weight reduction evolution.


mdd2009-001-169

GSX LIMITED, GTX LE AND GTX SE WITH 1203 ENGINE

What's New:

Electronically activated mechanical reverse.

Why:

As premium vehicles with all the "bells and whistles" a push button operated electric servo motor was developed for the 1203's mechanical reverse system. It functions like a conventional RER button on 2 stroke vehicles. A simple push of the button energizes the servo motor to change the transmission from forward to reverse and back.

mdd2009-001-131

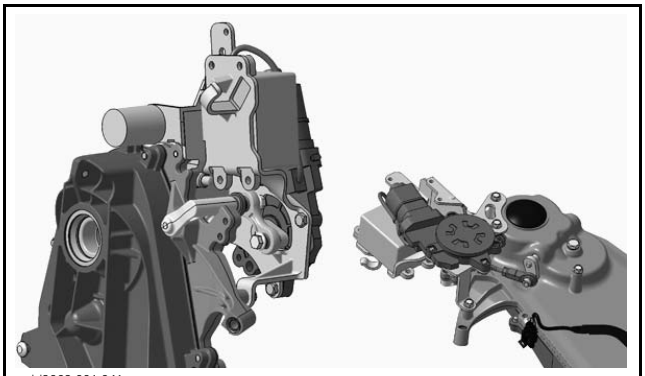
REV-XR GSX AND GTX

What's New:

New feature for 4-stroke application.

Why:

Weight reduction evolution.



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ALL 1203 EQUIPPED VEHICLES

What's New:

Stainless steel exhaust system with resonator.

Why:

For maximum durability and the refined sound quality required on the 1203 engine type.

mdd2009-001-133

ALL 1203 EQUIPPED VEHICLES

What's New:

Exhaust silencer.

Why:

Designed specifically for the 1203's engine parameters of proper back pressure and sound quality.

mdd2009-001-134

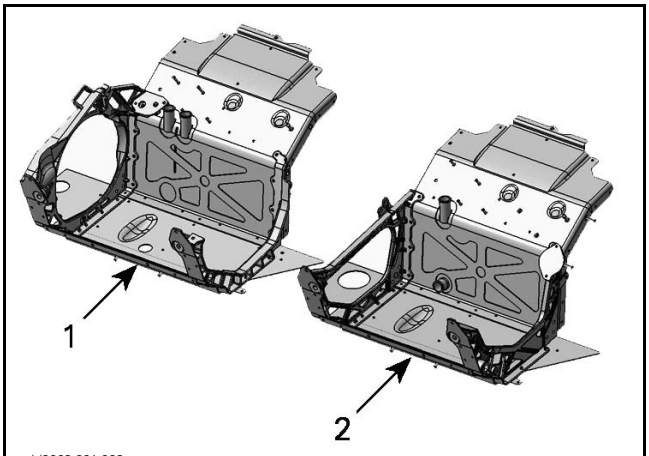
GTX SE

What's New:

[1] REV-XR E module.
[2] REV-XP E module.

Why:

Design to fit 1203 and E-Tec engines.



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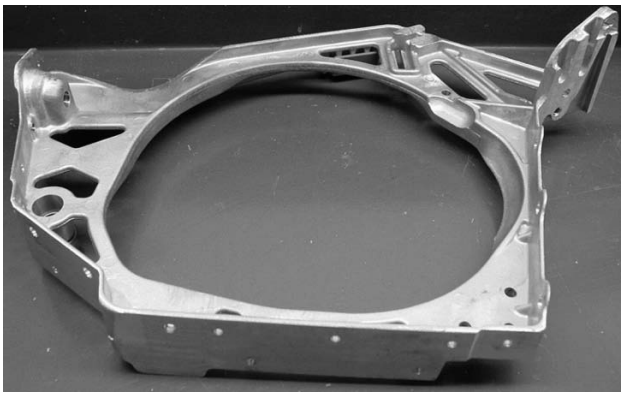
ALL REV-XR'S

What's New:

E module castings (right side shown).

Why:

Designed to fit REV-XR body style and engines, and cast in magnesium to reduce weight.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ALL 1200 EQUIPPED REV-XR'S

What's New:

Cross over motor support.

Why:

Cast of magnesium for lightweight this cross over support for the engine increases engine module strength, has an integrated torque stopper designed in, and reinforces the QRS bearing support tower.

The use of rubber mounts greatly reduces the amount of vibration transmitted to the chassis at idle.


mdd2009-001-187

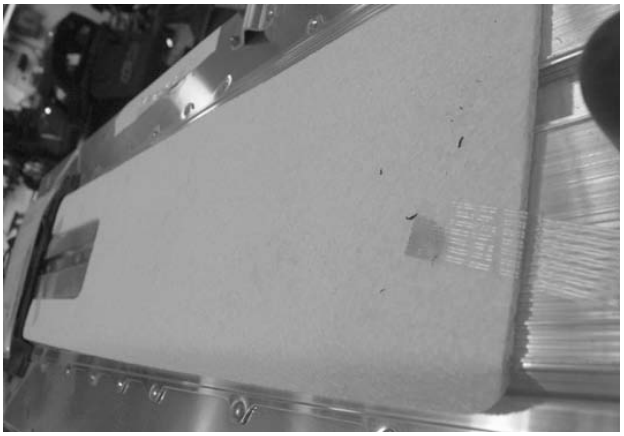
ALL REV-XR'S WITH 1203 ENGINE

What's New:

Foam pad added on top of heat exchanger.

Why:

To reduce heat dissipation into the fuel tank and maintain maximum fuel efficiency.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GTX LE AND SE

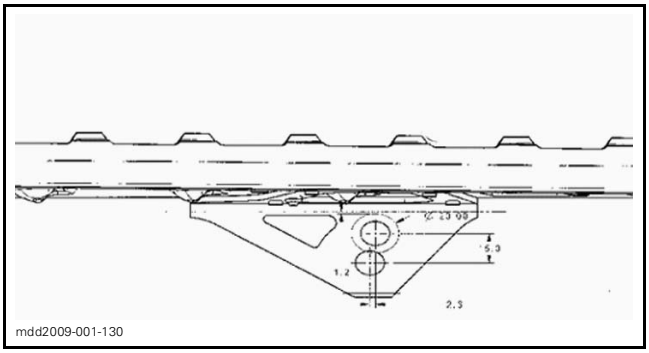
What's New:

Rear suspension mounting position.

Why:

Rear arm mounting position is 15 mm higher in chassis.

This allows the rear of vehicle, the driver, and passenger to be closer to the ground, reducing body roll and effectively lowering the center gravity of the vehicle.



mdd2009-001-130

GTX SE

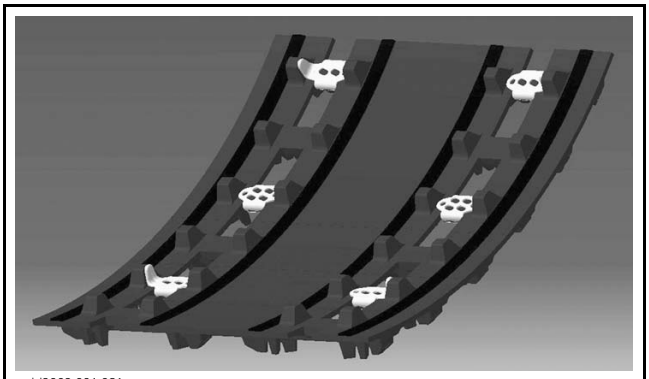
What's New:

Silent track technology.

Why:

4 softer 60 durometer strips vulcanized into track surface.

Idler wheels run on this surface and noise reduction of 3-4 dba possible.


mdd2009-001-031

GTX SE

What's New:

ACS (Air Controlled Suspension).

Why:

– Super smooth ride
– On the fly adjustment
– 5 settings to match trail condition.


mdd2009-001-003

GTX SE

What's New:

Digitally controlled electronic air pump.

Why:

To allow 5 preset pressures in rear air shock.

Automatically keeps air pressure in system constant with changing rider weights or loads applied. Each setting, 1-5 equates to approximately a 20 lb increase in pressure in system.

Example setting:

– number 1 = 15 PSI
– number 2 = 40 PSI,
– number 3 = 65 PSI
– number 4 = 90 PSI
– number 5 = 120 PSI.

Each time vehicle is started and a preset ride position is chosen, the air pump and pressure transducer calculates the pressure in the system with the rider, riders on board and makes necessary adjustments to keep ride pressure constant.

mdd2009-001-128

GTX SE

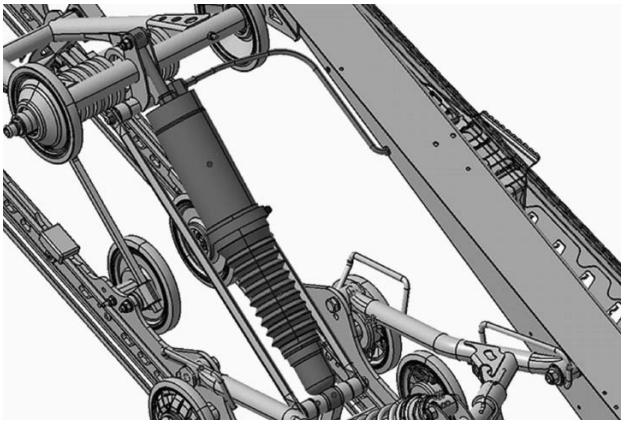
What's New:

Air shock.

Why:

Part of ACS (Air Controlled Suspension) system.

Reliable pneumatic bladder over hydraulic shock designed to give unparalleled ride with 1 or 2 passengers in ripple bumps to the bigger "G bumps" encountered during touring riding.



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REV-XU

mdd2009-001-027

REV-XU

What's New:

REV-XU body style, 600 HO SDI, synchromesh transmission, modular passenger seat, storage underneath seat, front radiator with fan.

Why:

85 lbs lighter than Yeti II platform, better ergonomics, new REV-XU body style, 12 liter of storage under seat.


mdd2009-001-185

REV-XU TUV 600 SDI

What's New:

REV-XU chassis

Why:

The REV-XU is based off our successful Rev X platform using the REV-XP "S" or suspension, and "E" or engine, modules and a new wider "T" or Tunnel module to accept the TUV's standard 50 cm wide track.

This standardizes the lineup reducing the number of parts and greatly improves the ride quality of these utility vehicles.


mdd2009-001-186

EXPEDITION

What's New:

Modular passenger seat.

Why:

Storage underneath seat.

mdd2009-001-004

REV-XU TUV 600 SDI

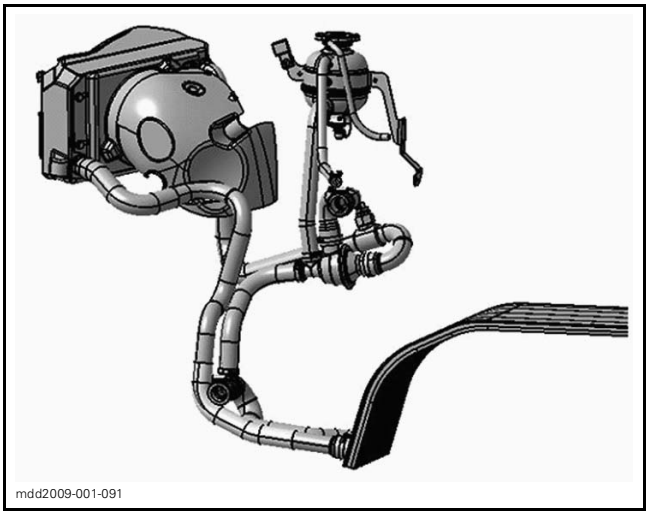
What's New:

Cooling system.

Why:

High efficiency dual cooler system developed.

Front radiator with thermostatically controlled fan for slow speeds and icy conditions, in series with a front bulkhead rear heat exchanger. Together with a separate bypass thermostat this system will provide stable operating temperatures under all types of use.



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REV-XU TUV 600 SDI

What's New:

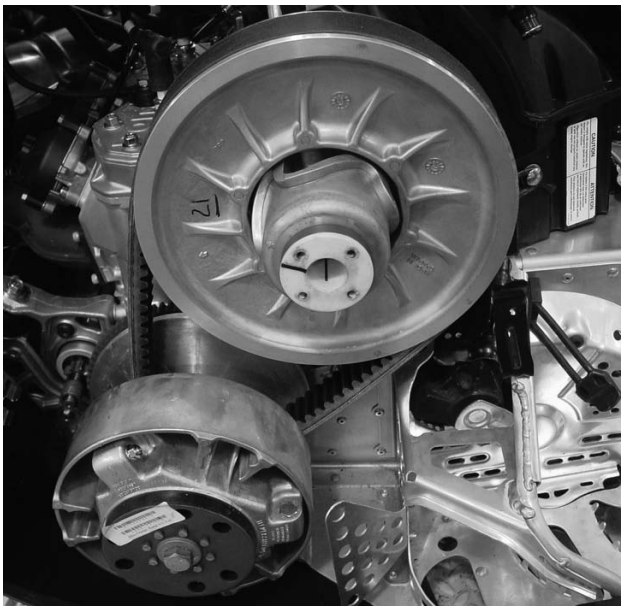
QRS drive system.

Why:

Similar to REV-XP models this TUV now incorporates the QRS drive system.

It has a one piece counter-shaft and fixed sheave of driven pulley, the splines and length of the counter shaft are new to fit the REV-XU transmission system. The remainder of the system cams and springs and rollers and sliding sheave are identical to REV-XP system.

Refer to appropriate *SHOP MANUAL* for cam removal procedures.



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REV-XU

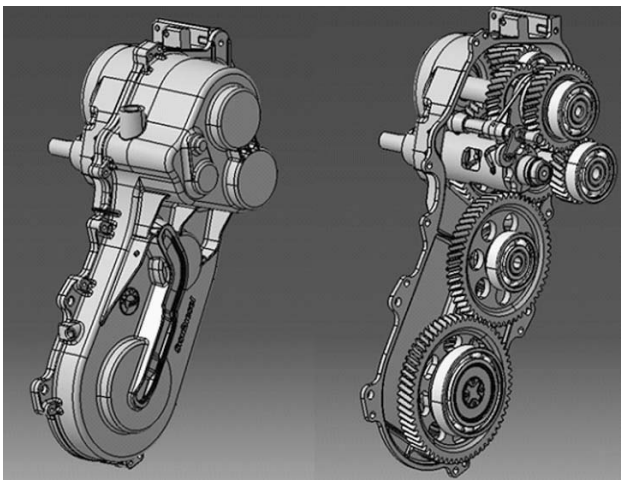
What's New:

Two forward speeds, plus reverse, synchromesh transmission.

Why:

Totally new, designed to fit REV-XU chassis and engineered to be stronger for larger power packs and heavy duty utility work.

A simplified shift linkage system is used to change gears.



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REV-XU 600 SDI

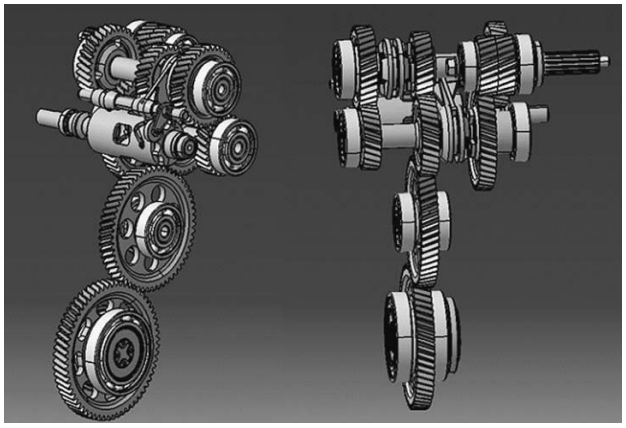
What's New:

Heavy duty synchromesh transmission.

Why:

All gear system eliminates chains and sprockets and allows shift on the fly durability. This system uses a rotating shift drum and heavy duty shift forks to select ratios and direction. All gear design also eliminates adjustments and reduces maintenance.

10 large diameter ball bearings support all moving gears and shafts.



mdd2009-001-092

REV-XU TUV 600 SDI

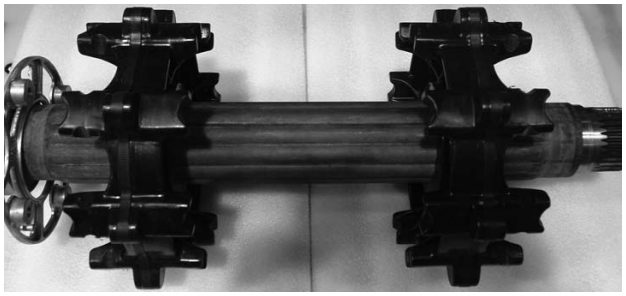
What's New:

Hydro-formed drive axel.

Why:

To adapt to REV-XU chassis and QRS drive system.

Similar to REV-XP hydro-formed axel but longer to fit wider track, and heavier wall thickness of "2.11 mm". This axel uses 9 tooth drivers in standard 2.52" pitch.



mdd2009-001-093

REV-XU TUV 600 SDI

What's New:

Brake system.

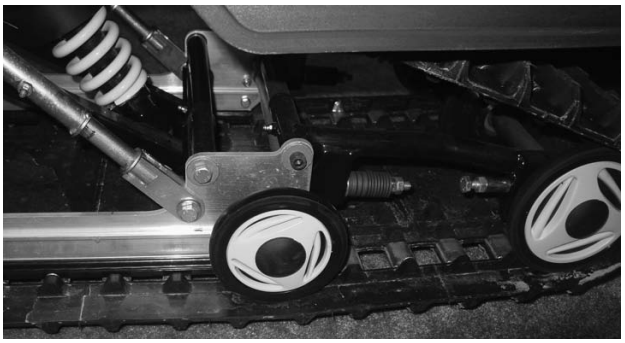
Why:

Similar to REV-XP brake caliper and disc are now mounted to drive axel. The master cylinder and caliper have new piston diameters to optimize braking forces without the mechanical advantage of chain or gear reduction.

New see through master cylinder is also lighter weight and has improved response.

mdd2009-001-095

REV-XU TUV 600 SDI


mdd2009-001-188

What's New:

Track.

Why:

Unlike the REV-XP chassis, the REV-XU uses a 2.52" or 64 mm sprocket on the hydro-formed axel, the track pitch is also 64 mm (similar to 2008 Expedition models).

NOTE: Stud's are not recommended or allowed on this model.

Engine

ROTAX®

277 AND 552

What's New:

No changes.

Why:

No changes.


mdd2009-001-160

TYPE 593 500 SS

What's New:

Magneto side oil seal.

Why:

Improved material to avoid grease leakage.


mdd2009-001-162

TYPE 593 500 SS

What's New:

Long term gas nitrated with out copper plating connecting rod.

Why:

For improved durability and standardization with other engines.


mdd2009-001-143

What's New:

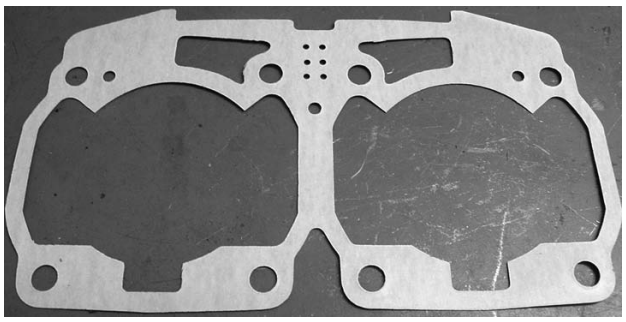
Compression ratio lowered.

Why:

Now 11.67:1 to reduce possibility of detonation with low octane fuel.

0.9 mm base gasket now available.

TYPE 593 500 SS



mdd2009-001-189

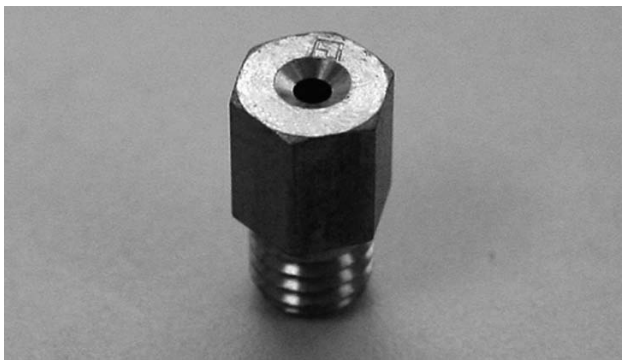
What's New:

Richer main jets.

Why:

For better engine protection under severe riding conditions. REV-XP= MJ 390 goes to 420.

TYPE 593 500 SS



mdd2009-001-152

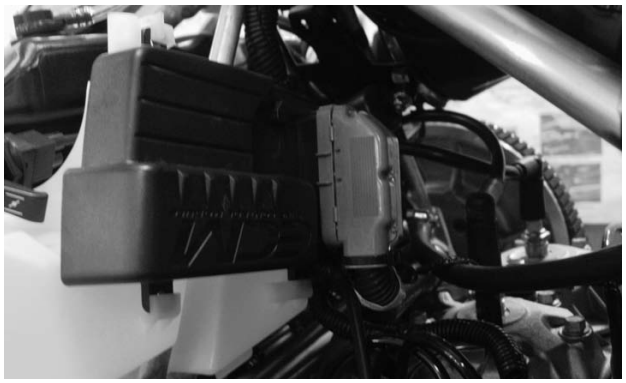
What's New:

ECM calibration file.

Why:

To improve engine reliability under severe conditions. Reduces the possibility of detonation.

TYPE 593 500 SS



mdd2009-001-144

TYPE 593 SDI

What's New:

New ECM software.

Why:

Richer break in mapping to protect against engine damage during break in.

mdd2009-001-166

TYPE 593 E-TEC

What's New:

No recoil on electric start model.

Why:

Weight reduction, This is possible due to unique nature of E-Tec's ability to start within half revolution of the crankshaft even with a fully discharge battery.

mdd2009-001-087

TYPE 593 SDI AND E-TEC

What's New:

Connecting rod.

Why:

Long term nitrated with out copper and polished for improved strength and durability, standardization.


mdd2009-001-147

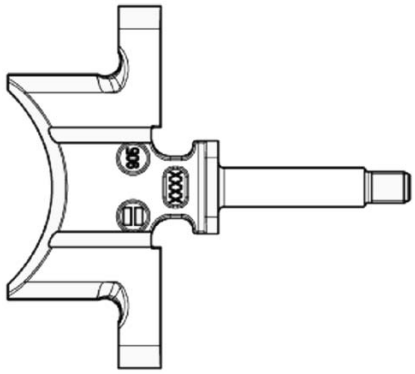
TYPE 593 E-TEC

What's New:

Lower rave valve.

Why:

Forged rather than cast for improved durability.
This valve is also a few mm shorter than 2008 valves.



mdd2008-002-114

TYPE 593 E-TEC

What's New:

Injector fuel lines.

Why:

These hoses are more flexible, and allow easier access and removal of injectors.

mdd2009-001-149

TYPE 593 SDI AND E-TEC

What's New:

Piston assembly (P/N 420 892 386).

Why:

New diameter to ensure proper piston cylinder clearance.

mdd2009-001-163

TYPE 593 E-TEC

What's New:

Nikasil cylinder (P/N 420 623 262).

Why:

Rave lower housing slot is machined slightly shorter.

This is designed to reduce carbon build up on rave guillotine.

This cylinder only fit's with 2009 rave valve.

mdd2009-001-164

TYPE 593 SDI AND E-TEC

What's New:

Magneto side crankshaft seal.

Why:

Improved material designed to eliminate grease leakage.


mdd2009-001-162

593 E-TEC

What's New:

More oil injected on rave valves.

Why:

To reduce carbon buildup on rave valves during sustained low to mid-throttle operation. A total of 15% of the engine's oil consumption is now directed to the rave's, this is accomplished via a change in the electronic oil pump's orifice diameter.


mdd2009-001-154

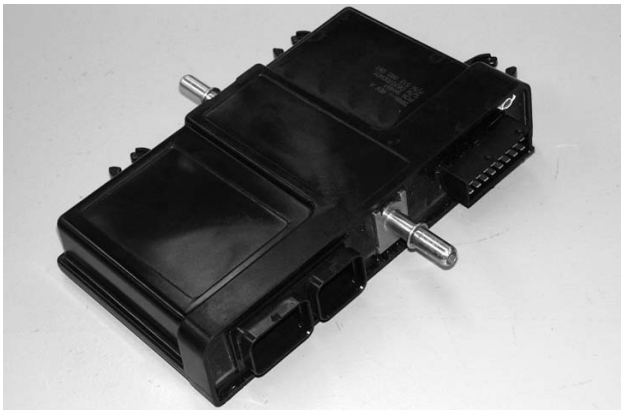
TYPE 593 E-TEC

What's New:

ECU fuel ignition mapping.

Why:

A more refined map was developed to cure a few small issues with the early introduction 2008 vehicles.


mdd2009-001-155

TYPE 593 SDI, E-TEC AND 797

What's New:

Rewind starter assembly (P/N 420 892 612).

Why:

Special coating added to rewind starter housing and pawl to avoid friction welding of pawl to sheave.


mdd2009-001-165

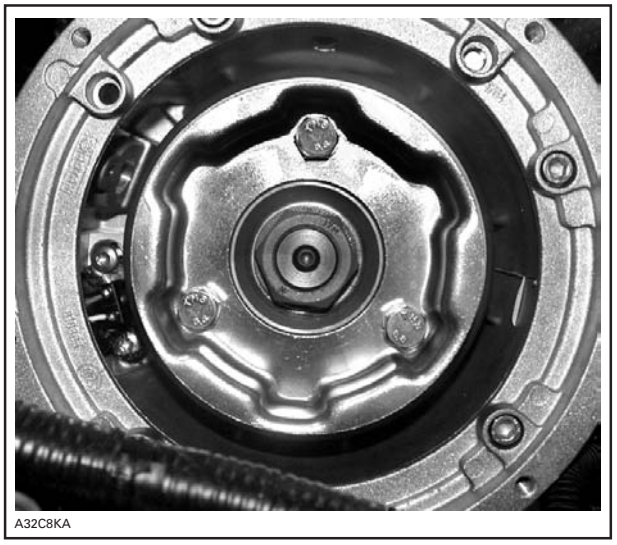
TYPE 797

What's New:

Starting pulley (P/N 420 852 532)

Why:

Narrower design to fit with new lengthened taper on flywheel. This is not retro-fitable with older parts.


A32C8KA

A32c8kA2

TYPE 797

What's New:

Connecting rod.

Why:

By using a long term carbo nitrated hardening process, and eliminating the copper coating, the end result is an even stronger rod.


mdd2009-001-150

TYPE 797

What's New:

Big end bearing.

Why:

Now heat treated with a carbon nitrated process to increase strength and durability.


mdd2009-001-151

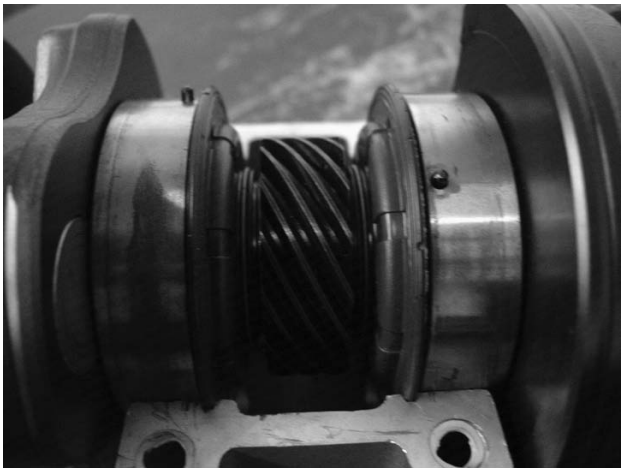
TYPE 797

What's New:

Center main bearings are now with integrated seals and C5 bearing fit.

Why:

C5 bearing versus C4 means more radial clearance and also center bearings are now grease filled with integrated seals. Similar to outside main bearings, no lubrication ever needed. Designed for improved durability.


mdd2009-001-153

TYPE 797

What's New:

Magneto flywheel.

Why:

New longer taper and increased tightening torque for improved durability.

MY 2009 part will not fit older crankshafts.

mdd2009-001-156

TYPE 797

What's New:

Magneto end of crankshaft.

Why:

Longer taper for magneto increases surface contact area fit. MY 09 crankshaft will not work with older engines or flywheels.

mdd2009-001-157

TYPE 797

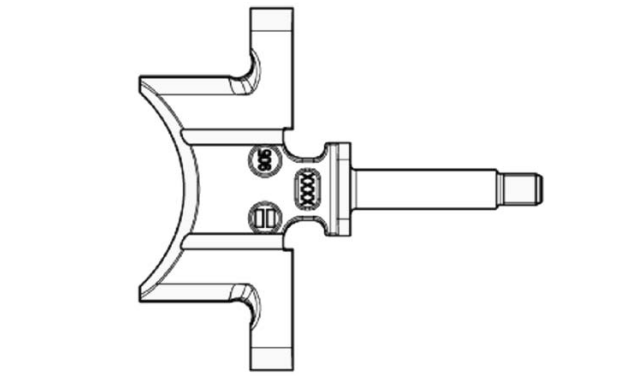
What's New:

Forged lower rave valve.

Why:

Previously a running change was made from a cast lower valve to a forged valve.

MY 2009 will have exclusively forged lower valves for greater durability.



mdd2008-002-114

500 SS AND 552 BREAK-IN PERIOD

What's New:

XP-S 2 stroke synthetic added to the fuel during the break-in period.

Why:

A break-in period of 10 operating hours 500 km (300 miles) is required before running the snowmobile at full throttle. During break-in period, maximum throttle should not exceed 3/4 opening. However, brief full acceleration and speed variations contribute to a good break-in.

CAUTION: Engine overheating, continued wide open throttle runs and prolonged cruising without speed variations should be avoided, this can cause engine damage during the break-in period.

mdd2009-001-237

ALL V-810 AND 1203 EQUIPPED VEHICLES.

What's New:

Auto shutdown mode.

Why:

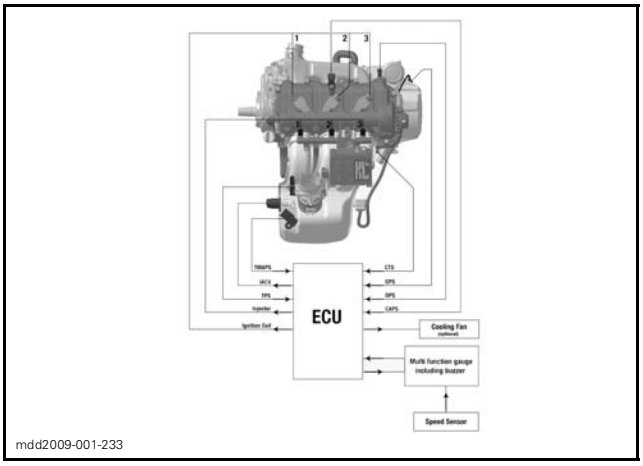
To save fuel, protect engine, and reduce emissions to the environment.

If coolant temperature reaches 118C / 240F and TPS is left closed for 30 seconds.

If coolant temp is 70C / 160F or higher and TPS is left closed for 5 minutes.

Warning beep not available on V-810 before shutdown.

A restart can be made immediately if required.



mdd2009-001-233

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.

NOTE: 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 2008

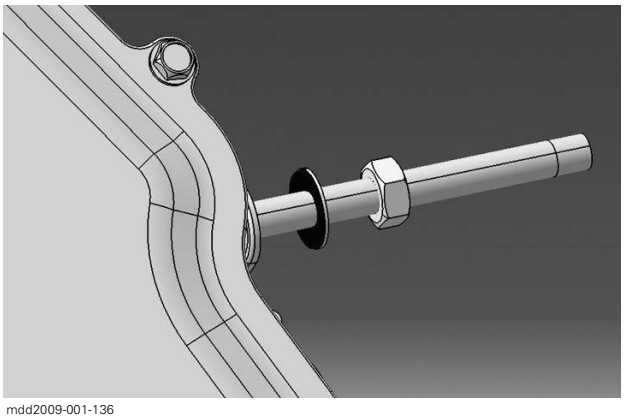
The following tables describe subjects that were discussed in previous Technical Update books.

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.

2007 Technical Update Book subjects (discussing Model year 2006)
– 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.

REV-XP CHAIN ADJUSTER BOLT LEAKING


mdd2009-001-136

The REV-XP chain adjuster bolt uses a steel locking nut with a small amount of Loctite 515 on the threads to seal. Once this bolt was turned for normal adjustment's the sealant no longer sealed. The solution is to remove the adjuster bolt, clean the threads, and install a special steel washer with a rubber backing (P/N 250 200 100). This part is standard on all 2009 REV-XP and REV-XR vehicles. The addition of this washer, and cleaning the old sealant off the threads will also make the adjuster much easier to turn by hand in the future.

REV-XP CHAIN-CASE COVER BOLT BREAKAGE


mdd2009-001-065

The REV-XP uses 6 mm self tapping bolts to secure the chain case cover.

Last season it was found that some of these bolts were not up to specification and the heads sheared off. If this is experienced the cover must be removed and the old broken bolt must be extracted carefully from the magnesium chain-case.

Replace all 7 bolts with a new bolt (P/N 250 000 360).

RENEGADE AND SUMMIT TRACK EDGES FRAYING


mdd2009-001-090

Last season there were reports of 16 inches (41 cm) wide REV-XP tracks fraying on the outer edges. These new single ply fabric tracks use a tighter fabric weave that is exposed on the outer edges of the track.

Due to the minimal clearance between the 16 inches (41 cm) wide tracks and the tunnel, aggressive riding, or minimal misalignment of the track's tension could cause the track edges to contact the rear bumper bolts. This fraying is considered cosmetic and has no effect on track integrity. The 2008 bumper bolts were 6 mm hex headed bolts.

For MY 2009 these bolts are now beveled or round head bolts.

The new bolt (P/N 250 000 223) can be used on 2008 vehicles to minimize track fraying.

REV-XP PREMIUM GAUGE ISSUES

mdd2009-001-204

Last season a number of internal and external issues developed with the Premium gauge. The rubberized Mode and Set button's were produced with a glued in magnet that often times came loose. If this happens the button may fail to change or set modes properly. The loose magnet may also cause the gauge to change modes at random. This situation can be easily corrected by ordering a replacement Mode and Set button (P/N 415 129 355), removing the gauges bezel and replacing the button assembly. All replacement part Mode and Set button's are produced with an encapsulated magnet that is molded into the rubber. If this issue is discovered on a standard gauge the same part number is ordered and the assembly can be cut with scissors so that only the Set button is used. Normal warranty applies for this repair.

A number of other electronic issues surfaced within the premium gauge. These included but are not limited to fuel gauge not reading full, total mileage accumulating at random, switching from KM to Miles or vice versa, communication error displayed, etc. These items will be addressed this fall. **This publication will pertain to a re-flash that is being developed.**

REV-XP COOLANT HOSE RUBBING

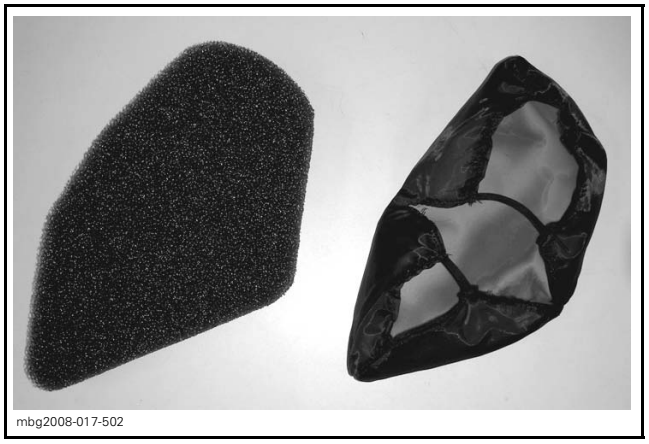

mdd2009-001-205

Last season we received reports of the heated carburetor coolant hose rubbing on the corner of the slide in and out airbox. It was determined that on the assembly line some "T" fittings may be installed slightly angled. If this happens the small coolant hose may make contact with the airbox potentially causing a coolant leak with time.

Solution:

Remove primary chamber of air box and inspect coolant hose. If chaffed or leaking, replace damaged hose, zip tie and correctly position coolant hose "T" fitting. Add new protector hose (P/N)to the assembly. Normal warranty applies.

RENEGADE OR SUMMIT PRE FILTER CLOGGING


mbg2008-017-502

In certain wet or powder snow conditions the stock pre filter on the REV-XP's air intake may clog with snow. This restriction may cause engine rpm to drop. An improved re-moveable pre filter has been developed for Snow Cross Racing and has been implemented into the 2009 Summit models as standard equipment. This pre filter can be easily be removed and replaced with a spare in severe riding conditions. The pre filter parts and instruction sheet are available under these part number's. Shaped foam (P/N 415 129 377) pre filter cover (P/N 415 129 376) This is a customer pays option.

REV-XP OIL TANK AND CAP LEAK


mdd2009-001-063

It has been determined that if the 2008 REV-XP oil tank cap is over tightened, the threads can become distorted and a small amount of oil could leak.

Solution:

Refer to What's New REV-XP section. The 2009 oil tank's have been modified with a change in threads so that the cap "stops" before thread distortion could occur. The 2008 part number substitute to the 2009 tank, all parts in stock are of the newer design. Normal warranty applies.

REV-XP COOLANT BOTTLE LEAK


mdd2009-001-062

Last season there were a number of RPQ reports of coolant levels dropping in the bottle.

Occasionally this was noticed after the vehicle was shut off and parked. A small amount of coolant was exiting the coolant bottle over flow hose. It has been determined that some coolant bottle sealing surfaces for the cap had been damaged during assembly. For MY 2009 the coolant cap sealing surface is wider and special precautions are being observed on the production line to ensure the surface is not damaged. If a coolant bottle shows signs of scratch marks and the level drops replace the bottle. All spare parts are of the 2009 design. Normal warranty applies.

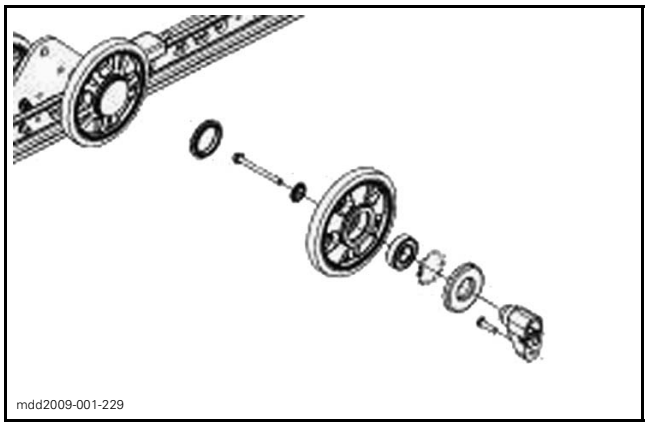
REV-XP REWIND ROPE FRAYING


mdd2009-001-206

Random reports came in last season of rewind ropes fraying within 2 to 3 inches (5 cm to 8 cm) of the rope handle. For MY 2009 the body panel grommet has been modified as per What's New section in book. For 2008 models inspect the rope near the handle and if frayed, remove the damaged section by shortening the rope and before re-tying the knot slide a 2.5 inches (6 cm) long section of "heat shrink"(P/N 512 059 668) over rope and carefully heat with a hot air gun.

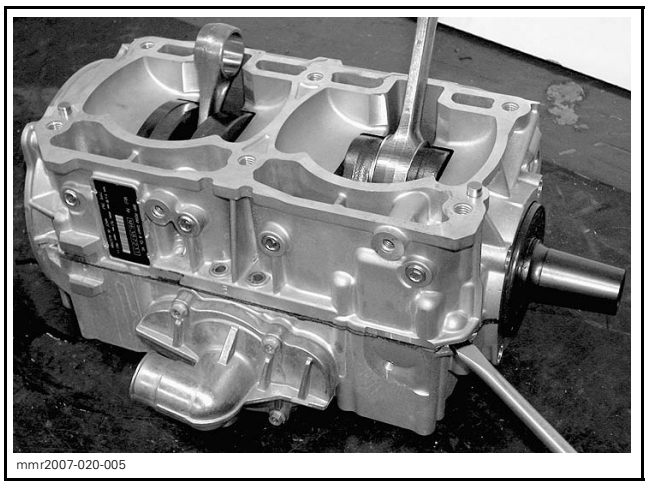
Proceed to tie the finished knot and that will solve the issue. Normal warranty applies.

TNT TRACK NOISE AND VIBRATION


mdd2009-001-229

Some customer's experienced a rather loud harmonic vibration and noise under steady state riding on hard pack trails. Engineering has investigated and found that adding a third lower set of idle wheels to the rails significantly reduces this phenomena. One of the key priorities of the TNT was to be under 400 lbs so many lightweight components were used, in it's creation, in some cases item were eliminated Part numbers required are listed in parts catalog under MXZ Adrenaline model. This is a customer pay option.

800 R CRANKSHAFT AND SHORTBLOCK UPDATE


mmr2007-020-005

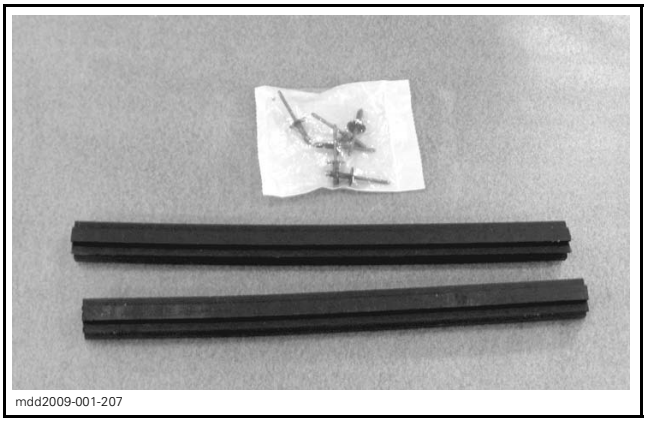
As noted in *WHAT'S NEW ROTAX* section the 2009 800 R crankshaft has changed. 2 major changes have occurred. The 2009 mag end taper is longer and will only work with a 2009 flywheel. The second major change is the center main bearings are grease filled with fully integrated seals. Other smaller changes are to the big end bearings and polished connecting rods. Here is a brief overview of the crankshaft, crankcase, and shortblock situation for model years 2007-2009.

2007 short block	(P/N 421 000 645)	New 2008 shortblock execution with Rev base plate installed, impulse fitting connectors included.
2007 crankshaft	(P/N 420 892 562)	Newest execution with old mag end taper.
2007 crankcase	(P/N 420 890 744)	2008 REV-XP crankcase opened up .01 mm larger. Will need Rev button plate added.
2008 short block	(P/N 420 079 707)	Newest execution with old mag end, new center bearings.
2008 crankshaft	(P/N 420 892 562)	Newest execution with old mag end, new center bearings
2008 crankcase	(P/N 420 890 744)	REV-XP engine mount style with case opened up .01 mm larger.
2009 shortblock	(P/N 420 079 706)	New execution with longer mag end taper, new center bearings.
2009 crankshaft	(P/N 420 892 567)	New execution with longer mag end taper, new center bearings
2009 crankcase	(P/N 420 890 748)	Newest execution REV-XP engine mount style.

REV-XP TUNNEL PROTECTORS

The original REV-XP rear tunnel protector kit (P/N 860 200 068) consisted of 2 full length slide in rear tunnel protector's of approximately .5 inches (12 cm) height. Under hard tail landings and if the track tension was excessively loose the studs may contact the rear area of the heat exchangers.

A newer kit was developed mid season last year that included 2 shorter rear sections of a thicker material approximately . ¾ inch (19 mm) tall. (P/N 860 200 259). This was designed to reduce the possibility of contact with the exchangers in the above listed situations.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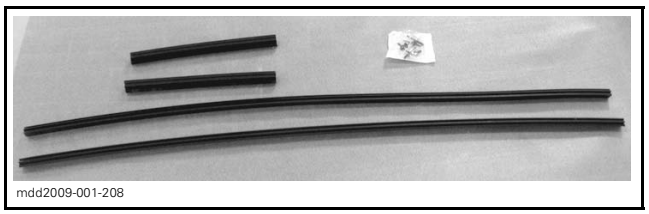
The original kit (P/N 860 200 068) supersedes to (P/N 860 200 257), this consists of 2 short front sections and 2 taller rear sections.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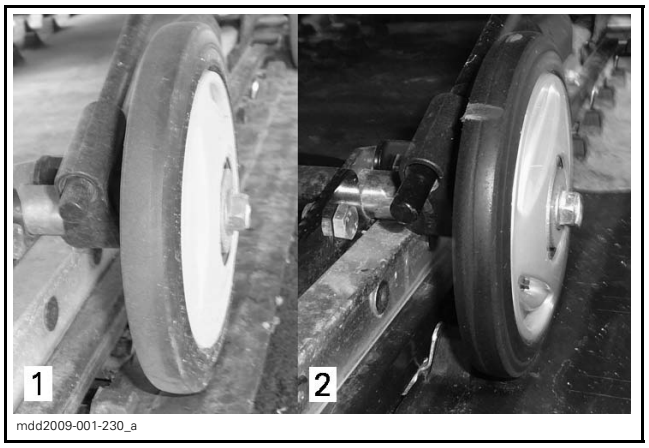
For MY 2009 REV-XP and REV-XR's a new kit has been developed. (P/N 860 200 267) This kit uses approximately 1 inch, (25.4 mm) tall protectors suitable for studded tracks up to 1.25 inch (31.75 mm) tall. The 2009 REV-XP and REV-XR rear end caps have larger openings in them to accept this taller protector without modifying.

SKANDIC SWT REAR SUSPENSION SPRING CONTACTING TRACK



mdd2009-001-230_a

[1] Shorted Spring.

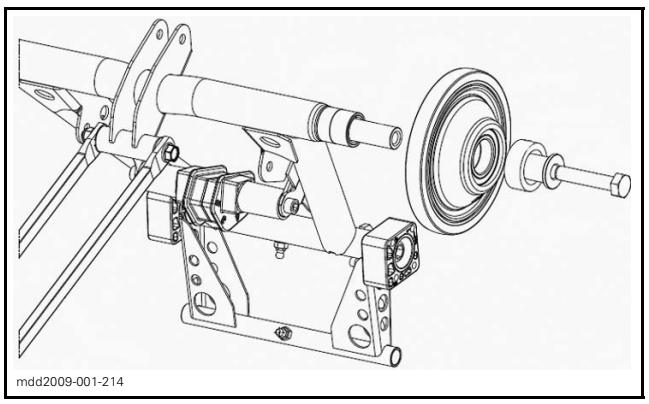
[2] Standard Spring.

Scattered reports came in from the field last season of the SWT's rear suspension spring occasionally making contact with the inner surface of the track. This situation can be possible when suspension is bottoming. Engineering has determined that more clearance can be achieved by shortening the end of the springs 15 mm by cutting or grinding them.

As a running change most 2009 springs will be shorter.

Normal warranty applies.

REV-XP TNT AND X PACKAGE RIDE COMPLIANCE IN RIPPLE BUMPS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For MY 2009 as noted in the *WHAT'S NEW* section there are many changes to most of the REV-XP models to give a more comfortable ride in smaller ripple bumps and the capacity to absorb the larger bumps. These include rear suspension arm, motion ratio rods, shock valving, and a switch to super high density seat foam. This softer more comfortable foam has been used on 2008 and 2009 Adrenaline models. A major improvement in "ride quality" can be observed by changing the seat foam or the entire seat assembly. The 2009 racing style seat foam will fit a 2008 racing seat. This gives 2 options for 2008 TNT and X package owners.

There are 3 basic options or a combination of these that can be done to update the ride quality similar to a 2009. These are listed in order of importance and installation priority.

A = Replace seat foam or seat assembly.

B = A + change rear shock calibration: 2 different choices available.

1. 2009 calibration as listed in Specifications section under shocks
2. 2009 optional softer calibration, again in shock specifications under options
3. Harder or firmer calibration should not be used unless rear arm is updated.

C = A + Rear arm assembly change to rising rate, and rear shock calibration change: 3 choices available

1. 2009 production calibration
2. 2009 softer calibration per shock option section
3. 2009 harder calibration per shock optional section.

The PAC department has created 3 "kits" to update 2008 vehicles to the above specifications. These are priced less than buying individual components.

Racing seat foam assembly (P/N 510 005 106)

120" rising rate rear arm kit (P/N 860 200 304)

137" rising rate rear arm kit (P/N 860 200 305).

Shock shim calibration kit (P/N 860200306).

NOTE: all shims necessary to valve 2008 and 2009 vehicles to optional soft or hard specifications.

Any and all of these changes are at the customers expense.

Warranty is not applicable.

800 R EXHAUST MANIFOLD BOLTS LOOSENING

The past few seasons the western riders have experienced exhaust manifold bolts loosening up. The reports of this issue decreased in MY 2008 however it is still an issue. For the 2009 model year engineering has upgraded the bolts to a grade 10.9 and they are slightly longer, now 22 mm long. This stronger bolt allows a new higher torque spec to be used. The new bolt is (P/N 514 054 626), and the torque is now 140-160 inch/lbs, 16-18 N/m.

It is highly recommended to re torque those bolts at the 10 hrs inspection.

REV-XP WIRING HARNESS ISSUES

Last season a few common wiring issues surfaced on our tech lines.

Below you will find a few of the most common areas intermittent shorts or open circuits were found.

Red and blue regulator wire wearing through insulation on bulkhead rivet. "Non SDI models." Regulator and rectifier is mounted just behind chain case. Note close up view in second photo.


mdd2009-001-217_a

There is a corrugated protective tube that the harness runs through up to the regulator, this tube ends about 2 inches (5 cm) short of the regulator. The red and blue wire exits this tubing close to the regulator and makes a sharp bend that occasionally may make contact with a bulkhead rivet. This will cause an intermittent short to ground and either blow a fuse or cause running issues, and gauge malfunctions. A close inspection is required to determine if insulation is compromised. If damaged repair as necessary and increase protection with corrugated tubing or electrical tape.

Tail-lamp wiring harness shorts to chassis. "Any REV-XP model."

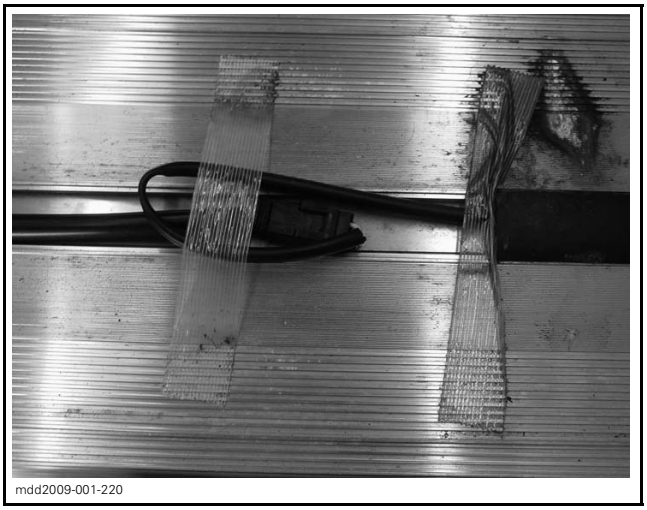
The tail-lamp wiring harness is routed under the fuel tank and as it exits the tank it passes through a channel between the two rear heat exchangers and is covered with a rubber strip. Some harness were tie rapped in a loop under the fuel tank. Depending on the length of chassis the tie rap was to have been cut and the excess wiring harness pulled to the rear tail-lamp area. The tail-lamp should be able to be pulled from it's rubber grommets and come out approximately 6 inches (15 cm). If the lamp assembly can only come out 2 inches (5 cm) the wiring harness is probably still looped and tie rapped under the rear of the fuel tank. This series of photo's below depicts the situation.


mdd2009-001-218

Proper tail-lamp wire length.


mdd2009-001-219

Incorrect tail-lamp wire length.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Cause of problem.

To correct issue, refer to *SHOP MANUAL* for complete procedures, lift rear of fuel tank, cut tie rap if used, repair any damaged or chaffed insulation on wires, pull excess tail-lamp wire wires to rear tail-lamp area. When finished wire should look like this:

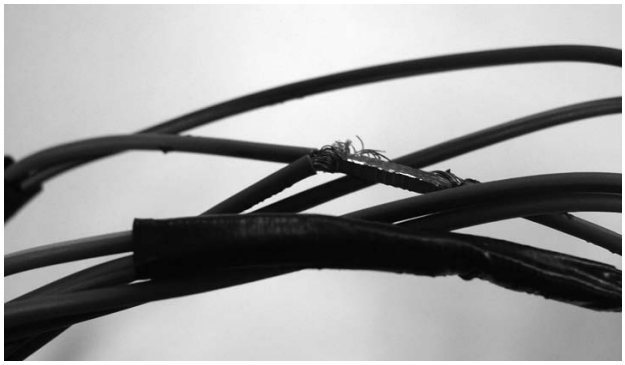

mdd2009-001-221

NOTE: Tail-lamp wires shorting to the chassis can cause fuse blowing, running issues, and intermittent gauge issues.

Wiring harness splices.

The REV-XP wiring harness uses various splices that are "ultrasonically welded" together. This process is designed to efficiently produce, robust, electrically sound splices of two or more wires. It has been found that some of these splices may not be secure. The splices for multiple grounds such as the 600 SDI injector wires are not to be located next to each other, the reason being, if the tape covering these splices is compromised the injectors could randomly be energized causing intermittent injector fault codes to be produced. Shorts or open circuits have been experienced on other model vehicles that have faulty splices. Below are examples of a few of these splices.

NOTE: **A warranty bulletin to follow this fall on wiring issues.**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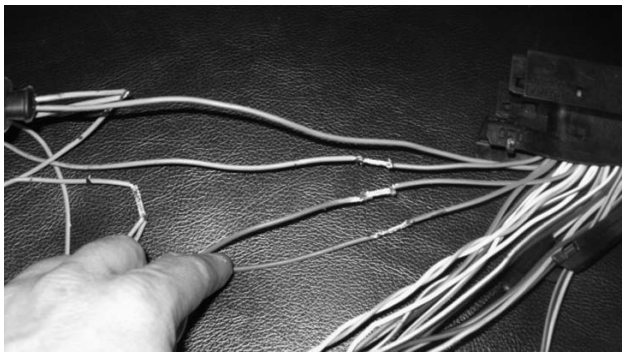
SDI injector fault codes possible.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REV-XP BRAKE SPONGINESS

Left equal correct position **[1]**.

Right equal wrong position **[2]**.

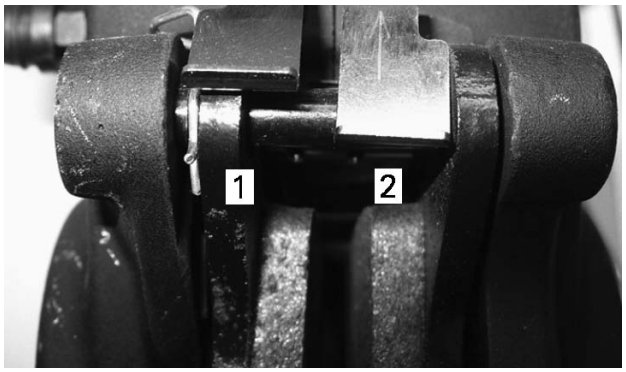
Random reports were received on the brake sponginess.

Upon inspection of vehicles and / or returned brake caliper.

We determined that the root cause was the brake spring tab position.

Before replacing brake system component such as brake caliper and or master cylinder, make sure the spring tab is corrected positioned.

NOTE: if needed replace spring tab.



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QRS ADJUSTER NOT MACHINED

The four slits in the plastic threads must be open all the way to the end of the adjuster.

If they are not, use a hacksaw to relieve them.

If the adjuster is not able to expand when the lock nut is tightened, it will not stay in place.

NEW ALIGNMENT SPECIFICATIONS FOR REV-XP CHASSIS.

Drive belt issues with 800R and REV-XP chassis.

Early last season many reports came in from the network of premature belt failures. Most of these reports were from Summit 800 R customers in deep snow conditions. An immediate investigation ensued and a number of items were discovered.

In order of importance.

– The drive belt (P/N 417 300 166) which had been used for many years was found to be one of the key contributors to short belt life in the REV-XP chassis
– Improper drive belt deflection
– Pulley alignment, .X and Y specifications
– Pulley calibration

The "166" belt rubber compound was found to soften and wear quickly under severe riding conditions. This wear resulted in loose belt deflection very quickly. If not readjusted immediately, the loose belt in the pulleys aggravated the situation by slipping in the pulleys on engagement. This raised the belt's temperature until an edge cord would pull out and lead to belt failure.

A new drive belt (P/N 417 300 377) was quickly developed, This belt was built to new length and width specifications and used a severe duty rubber compound. It is 1.5 mm wider to give more belt deflection adjustment with the OTD and QRS system as used on the REV-XP and REV-XR's. The belt's rubber compound as noted uses a very high percentage of a heat resistant compound as used previously in the Mach Z drive belts.

This drive belt was the number one improvement in belt life and reduced need for belt deflection adjustment intervals.

Many tests were conducted with various belt alignment specifications. These tests showed improvements could be attained, however none were as large as the new 377 belt. One of the improvements discovered was using a larger Y-X specification. This is the skew or twist of the engine compared to the driven pulley. It was found that the original Y-X specification of 1.6 mm was adequate with brand new motor mount, however after a short time the REV-XP's mounts took an initial "set" the spec was no longer optimum.

The new specification for the Y-X is 3 mm.

There has also been some questioning of the off set or X specification in the REV-XP's OTD /QRS system.

Some dealers expected to see the drive belt straight in the pulleys at idle or engagement. In reality the initial X specification of 37 mm would have the drive belt slightly skewed in the drive pulley. The X specification or off set is decided upon to give the best belt life possible under normal riding conditions. This happens to be with "perfect" belt alignment when the CVT is in a 2:1 ratio or approximately in the middle of the pulleys shifting travel. At lower or higher ratios the belt "alignment " or straightness in the pulleys will be skewed slightly.

It is impossible to have the drive belt completely straight in both pulleys under all CVT ratios.

The X dimension chosen for the REV-XP and REV-XR's ensures the best belt life possible for normal riding.

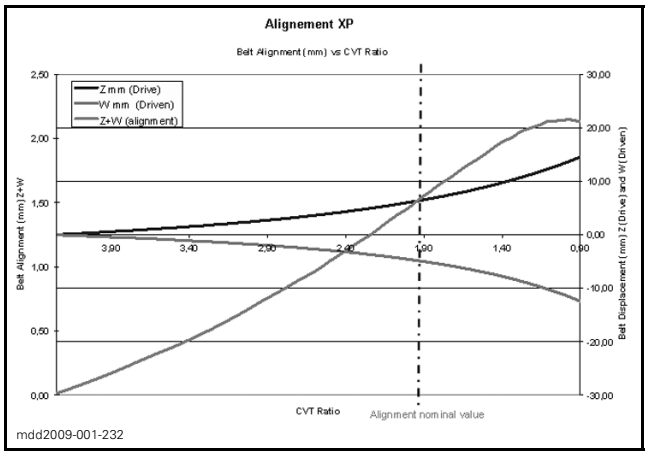
The nominal 2008 REV-XP pulley alignment specifications were as follows.

X	37.15 mm
Y-X	1.6 mm
W	258.7 mm
Z	21 mm

The revised 2009 nominal specifications are:

X	36.4 mm
Y-X	3 mm
W	258.7 mm
Z	21 mm

The engine mounts are not adjustable for alignment on 2008 or 2009 REV-XP and REV-XR models.



TNT AND MXZ X PACKAGE REAR IDLER WHEEL FAILURES

ski-doo QUALITY
SNOWMOBILES
WARRANTY
Bulletin

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

January 25, 2008 Subject: **Idler Wheel Failure** No. **2008-15**

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2008	MX Z X 800R	BB8A / BB8B / BB8C / BB8D / BB8E	All
	MX Z X 600SDI	BK8A / BK8B / BK8C / BK8D / BK8E	All
	MX Z Renegade X 800R	BS8A / BS8B / BS8C / BS8D / BS8E	All
	MX Z Renegade X 600SDI	BW8C / BW8D / BW8E / BW8F	All
	MX Z TNT 500SS	MF8A / MF8B / MF8C	All

PROBLEM
Under marginal snow or severe riding conditions, rear idler wheel (s) may fail.

SOLUTION
A) Replace defective idler wheel (s).
B) Install a third idler wheel kit.

PARTS REQUIRED

DESCRIPTION	KIT P/N	QTY
Idler Wheel Kit	860 200 118	1

Parts Included in the kit

ITEM	DESCRIPTION	QTY
P1	Hardened Plastic Spacer	1
P2	Wheel	1
P3	Spacer	1
P4	M10 x 35 Hexagonal screw (with nylon patch)	1
P5	Dust Seal (fits on [P1])	1
P6	Dust Seal (fits on wheel)	1

REPAIR PROCEDURE

Removal
1. Lift rear of vehicle and support it off the ground.
2. Remove wheel caps.
3. Loosen side axle screws.
4. Loosen track tensioner screw.

1. *Side axle screw*
2. *Tensioner screw*

1 / 3

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In 2008 both the TNT and MXZ X packages were produced with 2 rear idlers for weight saving purposes versus 3 as on the Adrenaline models.

Some riders in extreme conditions experienced failures with this design.

A WARRANTY QUALITY BULLETIN 2008-15 was issued last January on this subject If a customer experiences this issue ensure to follow the bulletin.

600 SDI 7.5 AMP FUSE FAILURES

ski-doo QUALITY SNOWMOBILES WARRANTY Bulletin

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

Campaign no.: 2008-0011

Date: **December 21, 2007** Subject: **7.5 Amperes Fuse Failing on 600SDI** No. **2008-13**
REVISION 1, January 7, 2008 <=

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2008	GSX LTD	DD8A	ALL
	GSX LTR	DJ8A	
	MXZ X	BK8A / BK8B / BK8C / BK8D / BK8E	
	MXZ RENX	BW8C / BW8D / BW8E / BW8F	

Problem

In certain conditions the 7.5 A fuse may be overloaded and fail.

If this occur, hands & thumb warmer, rave solenoid, gauge, head & tail light will stop functioning.

Solution

Replace F4 fuse which is a 7.5 A with a 15 A.

Part required

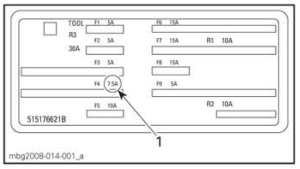
⇨Order parts through the normal channel⇦

Part Description	Part Number	Qty
Fuse 15 A	710 000 745	1
⇨F4 fuse value decal	515 176 776 ⇦	1

Procedure

Open right hand side panel.

Open fuse box cover by pushing on tabs each side of box.



Remove F4 [1] 7.5 A (P/N 710 000 743).

⇨Install F4 fuse value decal (P/N 515 176 776) over existing F4 fuse value number.⇦

Install a 15 A fuse (P/N 710 000 745) into F4 location.

Reinstall fuse box cover.

Close right hand side panel.

Test all electric devices for proper operation

1 / 2

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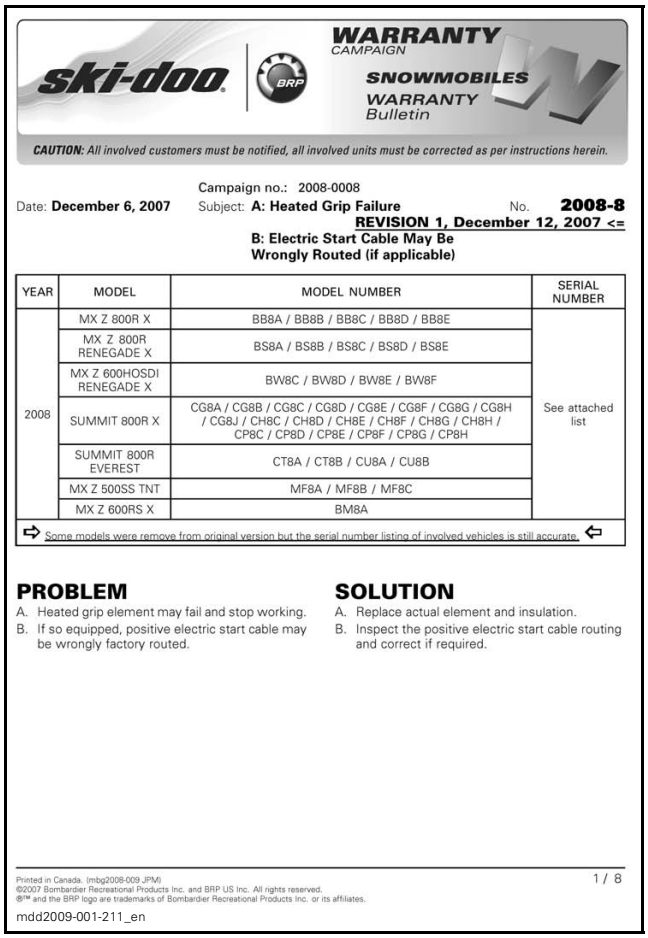
Last season it was determined that the 7.5 amp fuse on some SDI model's was underrated.

This could lead to fuse failure especially at initial start up of the vehicle.

A *WARRANTY QUALITY BULLETIN* 2008-13 was issued in January pertaining to this. Please ensure to follow bulletin if your customer has an issue.

REV-XP HEATED GRIP FAILURES



ski-doo

WARRANTY CAMPAIGN
SNOWMOBILES
WARRANTY
Bulletin

CAUTION: *All involved customers must be notified, all involved units must be corrected as per instructions herein.*

Campaign no.: 2008-0008

Date: **December 6, 2007** Subject: **A: Heated Grip Failure** No. **2008-8**
REVISION 1, December 12, 2007 <=
B: Electric Start Cable May Be Wrongly Routed (if applicable)

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2008	MX Z 800R X	BB8A / BB8B / BB8C / BB8D / BB8E	See attached list
	MX Z 800R RENEGADE X	BS8A / BS8B / BS8C / BS8D / BS8E	
	MX Z 600HOSDI RENEGADE X	BW8C / BW8D / BW8E / BW8F	
	SUMMIT 800R X	CG8A / CG8B / CG8C / CG8D / CG8E / CG8F / CG8G / CG8H / CG8J / CH8C / CH8D / CH8E / CH8F / CH8G / CH8H / CP8C / CP8D / CP8E / CP8F / CP8G / CP8H	
	SUMMIT 800R EVEREST	CT8A / CT8B / CU8A / CU8B	
	MX Z 500SS TNT	MF8A / MF8B / MF8C	
	MX Z 600RS X	BM8A	

⇨ Some models were remove from original version but the serial number listing of involved vehicles is still accurate. ⇦

PROBLEM

A. Heated grip element may fail and stop working.
B. If so equipped, positive electric start cable may be wrongly factory routed.

SOLUTION

A. Replace actual element and insulation.
B. Inspect the positive electric start cable routing and correct if required.

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Last season a *WARRANTY CAMPAIGN BULLETIN* 2008-8 was issued in early December regarding heated grip failures on REV-XP's with aluminum handlebar. Please make sure that all affected unit's have had this bulletin performed.

SKANDIC SAFETY RECALL

ski-doo BRP SAFETY CAMPAIGN
SNOWMOBILES WARRANTY Bulletin

⚠ **WARNING:** *All involved customers must be notified, all involved units must be corrected as per instructions herein.*

Campaign no.: 2008-0013
2007-0008
2005-0017

April 3, 2008 Subject: **Fuel Hose Replacement** No. **2008-17**
REVISION 1
May 13, 2008 <=

INVOLVED VEHICLES

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2005	Expedition® TUV 600 H.O. SDI	FB5A / FB5B	All
2007	Skandic® SWT V-800	FP7B	
2008	Skandic SWT V-800	LS8B	
	Skandic SUV 600 H.O. SDI	FB8H	

NOTE: If campaign 2008-0014 or 2007-0009 (Bulletin 2008-18) are still to be performed on model FP7B and LS8B, as per vehicle history in BOSSWeb, dealer must perform it.

OBSOLETE PARTS FROM INVENTORY TO BE RETURNED

PART NUMBER	PART DESCRIPTION
605 352 618	Fuel filter assembly (600 H.O. SDI)
605 353 233	Fuel filter assembly (V-800)
For claiming procedure, refer to warranty section.	

⇨

NOTE: Underlined text(s) between arrows is (are) added element(s) to the original publication.

⇦

PROBLEM

BRP experienced four fuel tank explosions which occurred in Rigolet, a community in Newfoundland, Labrador, Canada. After investigation, it was determined that under extremely cold and dry weather (temperature of less than -30°C (-22°F) and less than 50% relative humidity), electrostatic charges were accumulating on components within the fuel tank when the engine was left idling. At a certain level of accumulation, charges dissipated suddenly, sparking in the vapor space volume of the partially filled fuel tank, igniting a combustible mixture of gasoline and air and therefore causing an explosion. This could potentially cause serious injuries or even death.

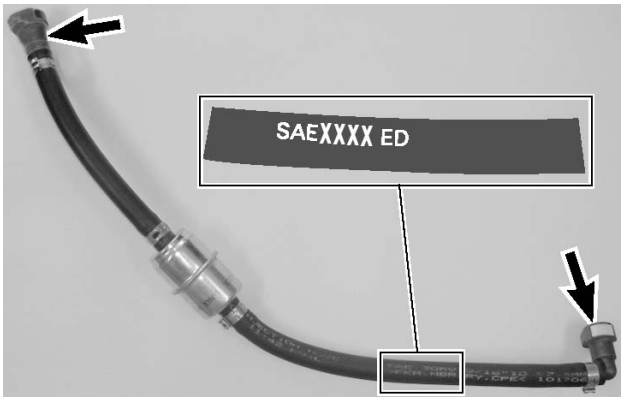
Normally the air/fuel ratio of the vapor space of a fuel tank is overly rich in fuel thus inhibiting ignition of the mixture. In the above mentioned cases, the fuel came from the same single bulk storage tank. The storage time between the moment it left the refinery and the time it was used in the community of Rigolet exceeded eight months. This lengthy storage period had the effect of lowering the Vapor Pressure characteristic of the fuel and therefore allowing the vapor space mixture in the fuel tank to reach the ignitable air/fuel ratio range, which became a significant factor in the explosions.

SOLUTION

Replace the current fuel filter assembly of the fuel feed line to the engine with a new assembly in which the hoses and quick connectors feature components having a higher electric conductivity. This will electrically bond the components of the

mdd2009-001-213_en

A safety recall was released dated April 3rd 2008. This referred to a fuel hose replacement. Please read this bulletin thoroughly and be sure to comply with it. Parts are available and in stock. A letter has also been sent to all affected registered owners.



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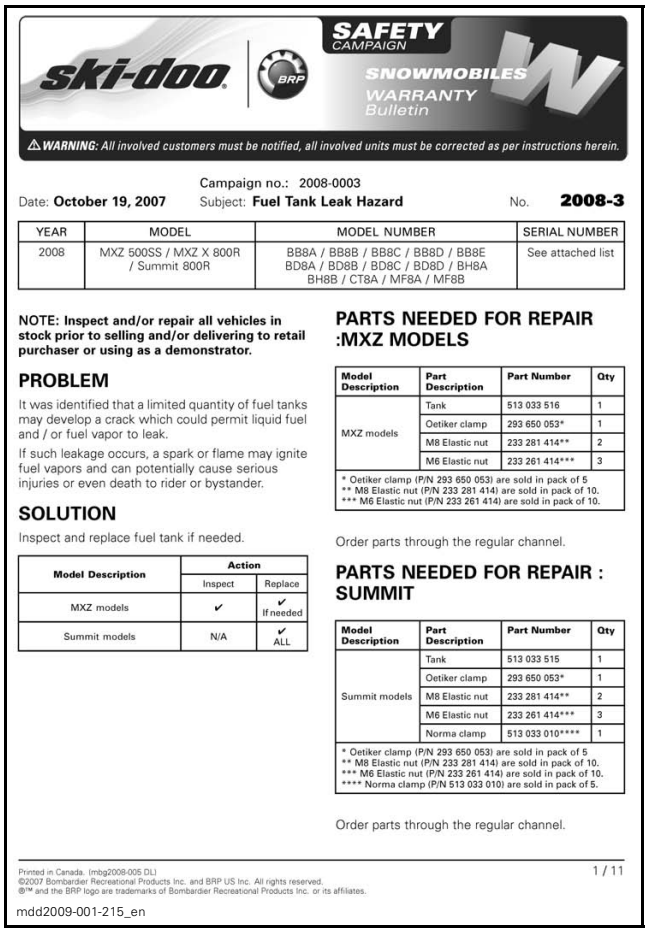
REV-XP MXZ AND SUMMIT FUEL TANK SAFETY RECALL



ski-doo

SAFETY CAMPAIGN

SNOWMOBILES WARRANTY Bulletin

⚠ **WARNING:** *All involved customers must be notified, all involved units must be corrected as per instructions herein.*

Campaign no.: 2008-0003

Date: **October 19, 2007** Subject: **Fuel Tank Leak Hazard** No. **2008-3**

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2008	MXZ 500SS / MXZ X 800R / Summit 800R	BB8A / BB8B / BB8C / BB8D / BB8E BD8A / BD8B / BD8C / BD8D / BH8A BH8B / CT8A / MF8A / MF8B	See attached list

NOTE: Inspect and/or repair all vehicles in stock prior to selling and/or delivering to retail purchaser or using as a demonstrator.

PROBLEM

It was identified that a limited quantity of fuel tanks may develop a crack which could permit liquid fuel and / or fuel vapor to leak.

If such leakage occurs, a spark or flame may ignite fuel vapors and can potentially cause serious injuries or even death to rider or bystander.

SOLUTION

Inspect and replace fuel tank if needed.

Model Description	Action	
	Inspect	Replace
MXZ models	✔	✔ If needed
Summit models	N/A	✔ ALL

PARTS NEEDED FOR REPAIR :MXZ MODELS

Model Description	Part Description	Part Number	Qty
MXZ models	Tank	513 033 516	1
	Oetiker clamp	293 650 053*	1
	M8 Elastic nut	233 281 414**	2
	M6 Elastic nut	233 261 414***	3

* Oetiker clamp (P/N 293 650 053) are sold in pack of 5
** M8 Elastic nut (P/N 233 281 414) are sold in pack of 10.
*** M6 Elastic nut (P/N 233 261 414) are sold in pack of 10.

Order parts through the regular channel.

PARTS NEEDED FOR REPAIR : SUMMIT

Model Description	Part Description	Part Number	Qty
Summit models	Tank	513 033 515	1
	Oetiker clamp	293 650 053*	1
	M8 Elastic nut	233 281 414**	2
	M6 Elastic nut	233 261 414***	3
	Norma clamp	513 033 010****	1

* Oetiker clamp (P/N 293 650 053) are sold in pack of 5
** M8 Elastic nut (P/N 233 281 414) are sold in pack of 10.
*** M6 Elastic nut (P/N 233 261 414) are sold in pack of 10.
**** Norma clamp (P/N 513 033 010) are sold in pack of 5.

Order parts through the regular channel.

Printed in Canada. (mbg2008-005 DL) 1 / 11

mdd2009-001-215_en

In October of last season a fuel tank *SAFETY CAMPAIGN WARRANTY BULLETIN* was issued, 2008-3. This bulletin was mailed to all dealers and a notification letter sent to all registered customers at that time. The complete bulletin is available on Boss Web. This bulletin pertained to specific models, ensure that all of the unit's involved have been inspected or updated.

MXZ AND SUMMIT THROTTLE CABLE INTERFERENCE SAFETY RECALL BULLETIN

ski-doo

SAFETY CAMPAIGN

SNOWMOBILES WARRANTY Bulletin

⚠ **WARNING:** *All involved customers must be notified, all involved units must be corrected as per instructions herein.*

Campaign no.: 2008-0002

Date: **October 19, 2007** Subject: **Throttle Cable Interference** No. **2008-2**

YEAR	MODEL	MODEL NUMBER	SERIAL NUMBER
2008	MXZ 500SS / MXZ X 800R / Summit 800R	BB8B / BB8C / BB8D / BH8A / BH8B CT8A / MF8A / MF8B	See attached list

NOTE: Repair all vehicles in stock prior to selling and/or delivering to retail purchaser or using as a demonstrator.

PROBLEM

It was identified that if the throttle cable adjustment is screwed completely down in the carburetor bracket, the end of the cable may eventually interfere with the carburetor lever mechanism.

In that particular situation, if throttle is sufficiently opened, the throttle cable end could potentially interfere with the throttle lever and, in some cases, prevent the throttle lever from returning freely to idle position.

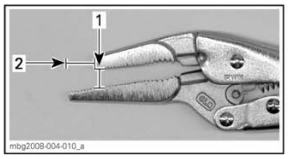
If this occurs, it could lead to loss of speed control and possible collision with bystanders, a fixed object or another vehicle and potentially cause serious injuries or even death.

SOLUTION

Bend carburetor lever mechanism to allow appropriate clearance.

PROCEDURE

NOTE: To correctly perform this procedure tool modification is required.



Using a 6" Long nose locking pliers (Ex: IRWIN Vise-Grip® P/N 1402L3 Model 6LN) cut 0.5 in (12.7 mm) [2] from the fixed side of the jaw.

NOTE: All involved dealers will receive a 25.00$ reimbursement for the locking pliers modification.

Remove belt guard.

Slide out air box.

Pre-set the pliers jaw at 8 mm (0.3 in) [1].

[1]Vise-Grip is a trademark of IRVIN industrial Tools

1 / 3

mdd2009-001-216_en

On October 19, 2007 a *SAFETY CAMPAIGN WARRANTY BULLETIN* 2008-2 was issued pertaining to throttle cable interference on certain MXZ and Summit models. The first page of this bulletin is included bellow. Ensure that any and all vehicles involved are updated.

New Technologies

In this section you will find the most current information concerning the latest technologies used by BRP.

4-Tec

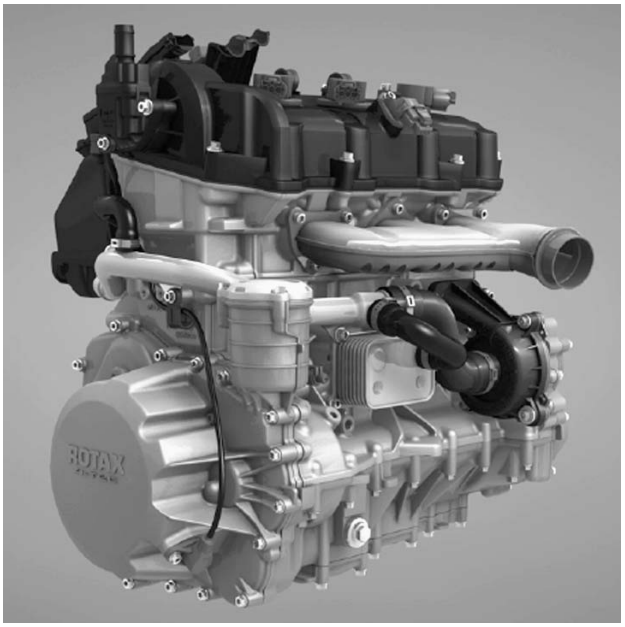
mdd2009-001-035

ROTAX 4-TEC 1203

The Rotax 4-TEC 1203 is a 130 hp performance four stroke designed for snowmobiles and aimed squarely at the 600 cc class. It's a light weight engine with the highest horsepower, the leading torque, and the lowest emissions of anything in its class.

Benefit's of 4- TEC 1203 technology:

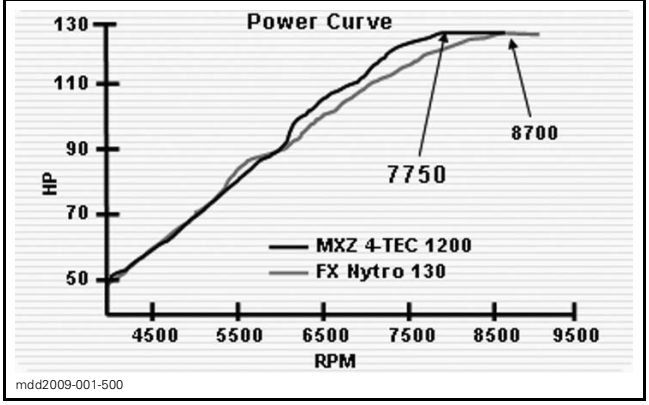
- Great fuel economy, 22 mpg (CAN) or 18.3 mpg (US)
- Low smoke and smell
- Smooth running
- Deep throaty exhaust sound
- Wide power band
- It has magnesium components (36% less weight than aluminum)
- It has glass fiber reinforced Polyamide components (60% less weight than aluminum).



mdd2009-001-022

Power Curve

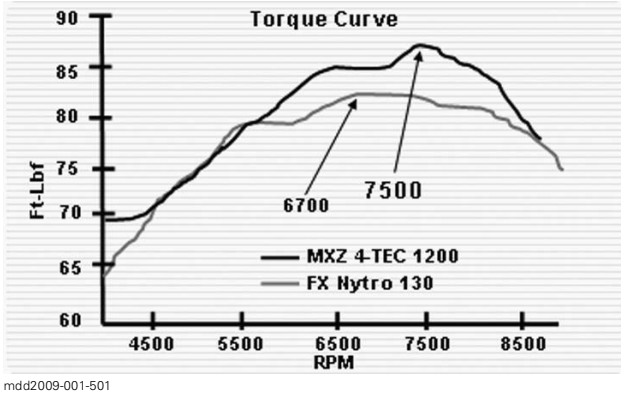
The 4-TEC 1203 horsepower peaks a full thousand rpm below the Yamaha's. This greatly improves belt life and transmission efficiency.



mdd2009-001-500

Torque Curve

The 4-TEC 1203 has five percent more torque than the Yamaha and more torque than Nitro from 5500 rpm and up.



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Key Features

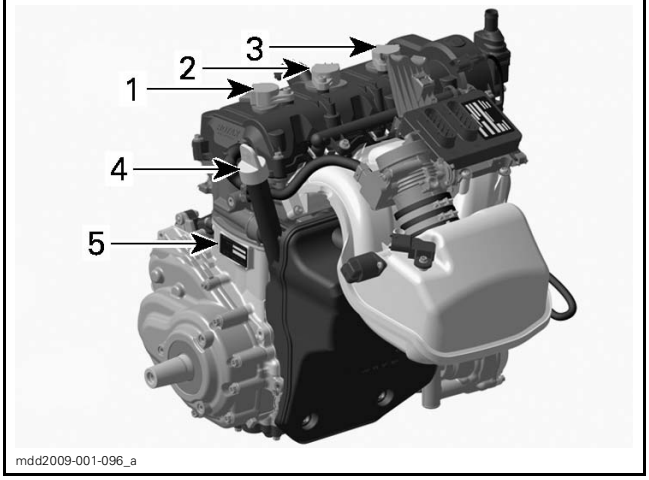
Some of the key features of the 4-TEC 1203 include but are not limited to.

– 3 cylinders, 1170.7 cc
– DOHC (Dual Overhead Cams)
– Multi-port fuel injection
– 4 valves per cylinder
– Finger follower valve activation
– Blow-by vent valve
– 500 Watt magneto
– Dry sump oiling.


mdd2009-001-020

PTO Side Component Location

[1] Cylinder number 1
[2] Cylinder number 2
[3] Cylinder number 3
[4] Oil level check and fill
[5] Serial number plate.



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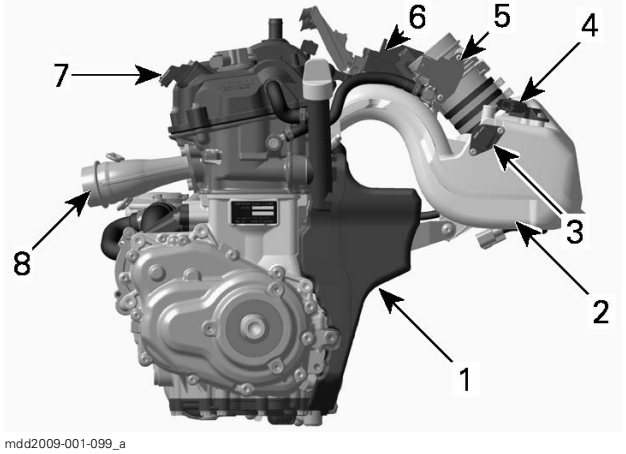
PTO Side Component Locations

[1] Oil tank
[2] Intake plenum
[3] IACV (Idle Air Control Valve)
[4] MAPTS (Manifold Air Pressure and Temperature Sensor)
[5] Throttle body
[6] Engine Control Module (ECM)
[7] CAPS (Camshaft position Sensor)
[8] Exhaust manifold.



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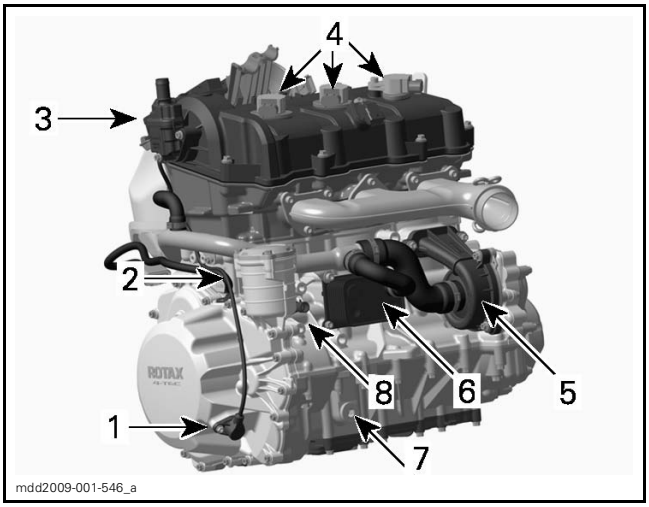
MAG Side View

[1] CPS (Crankshaft Position Sensor)
[2] Oil filter housing
[3] Blow-by valve
[4] Stick coils (Ignition Coils)
[5] Water pump
[6] Oil cooler
[7] Oil pressure regulator
[8] Oil pressure switch.



Based on the preceding text complete the following:

On the 1203 engine cylinder number 1 is located on the MAG side.

☐ TRUE

☐ FALSE

Which of the following are features of the 1203 engine?

☐ 4 valves per cylinder

☐ Finger follower valve activation

☐ Blow-by vent valve

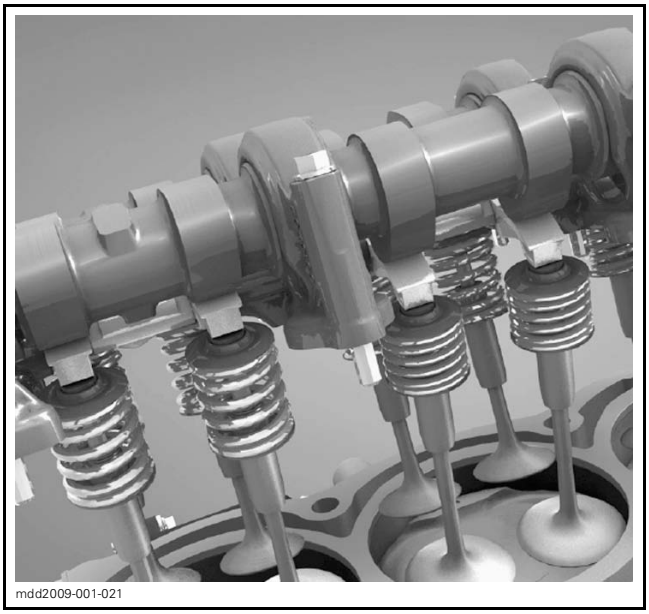
☐ These are all features of the 1203 engine.

Finger Follower Valve Actuation

Coupled with the DOHC 4 valve design the 4-TEC 1203 utilizes finger follower valve actuation.

Benefit's of this technology:

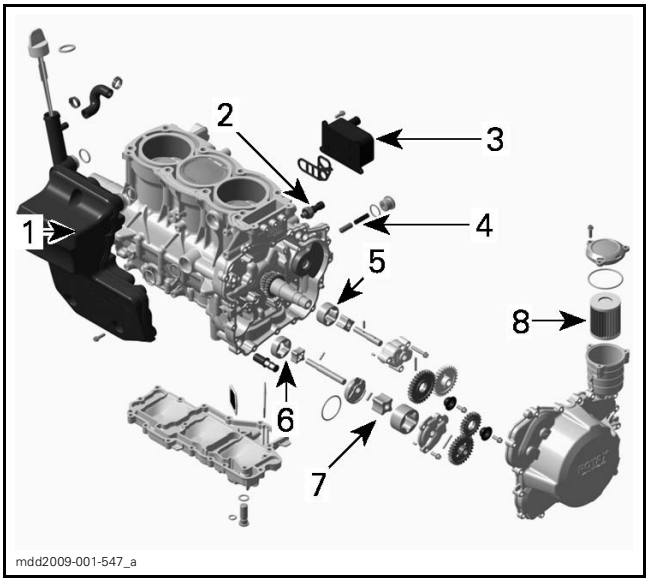
– Less mass (weight)
– Less noise in valve train
– Ease of maintenance
– For use at high rpm.



Lubrication System

The Rotax 1203 features dry sump lubrication with three oil pumps. One pump supplies pressurized oil from the oil tank for engine lubrication. There are two scavenge pumps one evacuates the oil from the crankcase and returns it to the oil tank. The second scavenge pump removes the oil from the timing chain case and returns it to the oil tank.

[1] Oil tank
[2] Oil pressure switch
[3] Oil cooler
[4] Oil pressure regulator
[5] Oil pressure pump
[6] Oil suction pump
[7] Oil evacuation pump
[8] Oil filter.



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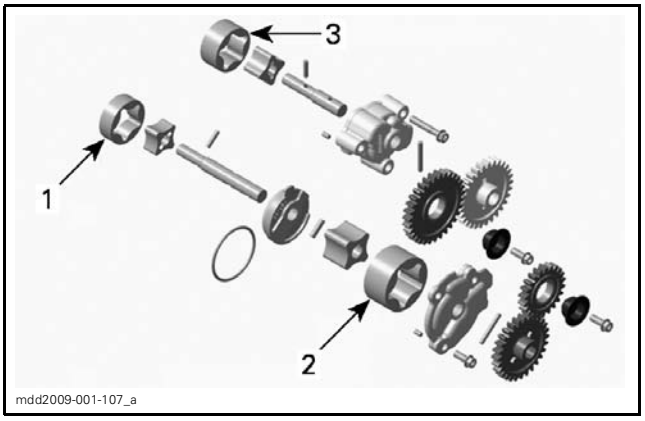
Oil Pumps

[1] Oil suction pump
[2] Oil evacuation pump
[3] Oil pressure pump



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Lubrication System Specifications

Oil pressure:
– Minimum – 100 Kpa (14.5 PSI) @ 1100 rpm (idle) @ 80°C (176°F)
– Minimum – 400 Kpa (58 PSI) @ 7700 rpm (WOT) @ 80°C (176°F).

Oil type and capacity:
– BRP synthetic 4 stroke oil SAE 0W-40
– First engine filling 4 liters
– Service oil filling approx. 3,5 liters.

Oil filling quantities:
– New assembled, dry engine: 4 liters
– Oil change incl. oil + filter change: 3.5 liters.

Oil filter change interval:
– New engine: first service oil change after 600 km or 10 hrs.
– Then every 6000 km or 100 hrs engine or once a year (before season). Always replace oil and oil filter at the same time.

Oil Level Check Procedure

Place vehicle on level surface.

Engine oil must be warm above 80°C (176°F)

Let engine idle for approximately. 30 seconds.

Stop engine.

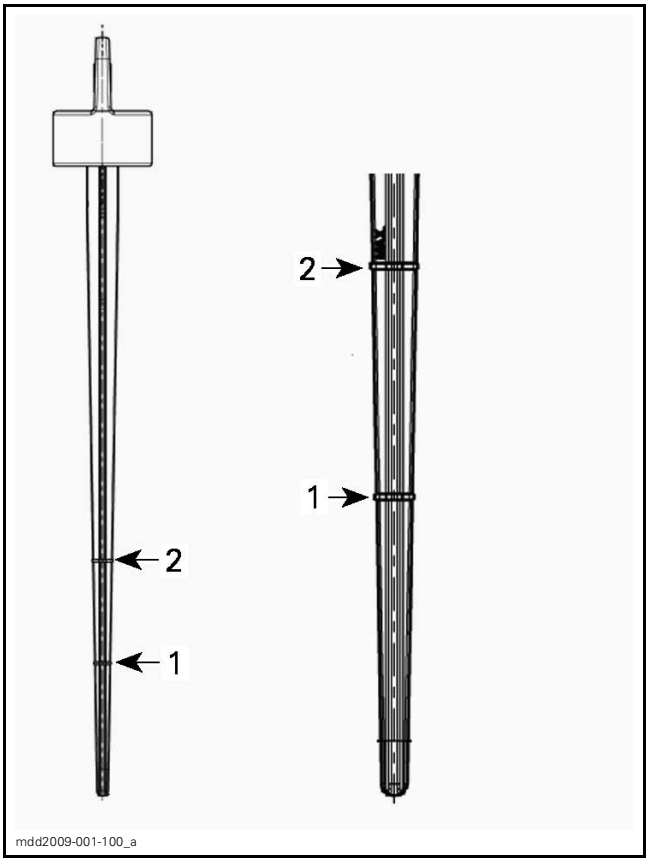
Remove dipstick, clean it and screw it back into oil filler tube. Remove dipstick and read oil level. Oil level should be between MIN (minimum) and MAX (maximum) marks on dipstick. Add oil until oil level is near MAX mark on dipstick.

Oil level Indicators.

[1] Minimum

[2] Maximum.

NOTE: Oil quantity between MIN and MAX marks is approximately 0.5 liters.



Based on the preceding text complete the following:

What is the minimum oil pressure for the Rotax 4-TEC 1203 engine?

_____ Kpa (____ PSI) @ 1100 rpm (idle) @ 80°C

What is the oil quantity indicated between the minimum mark and the maximum mark on the 4-TEC 1203 engine?

☐ 1.0 liters

☐ 0.5 liter

☐ 1.5 liters

☐ 1.0 quart.

There are two _____ pumps, one evacuates the oil from the _____and returns it to the oil tank. The second _____ pump removes the oil from the _____ _____ _____ and returns it to the oil tank.

Cooling System

The cooling system is a closed loop system with 50% water / 50% ethylene glycol as the coolant.

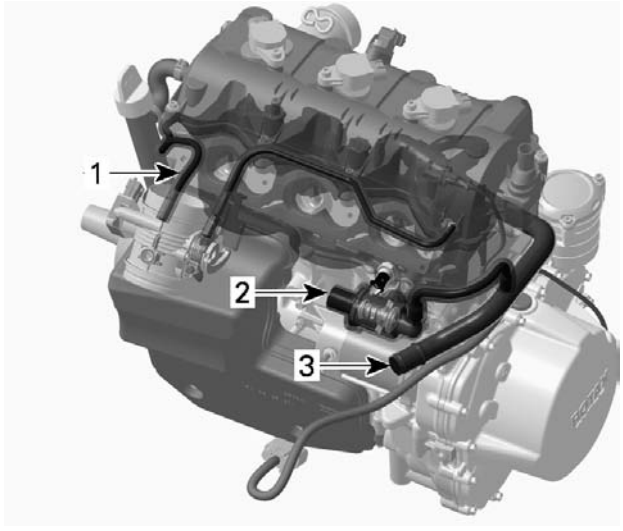
[1] Throttle body heating

[2] Water OUT to the coolant radiator (Thermostat location)

[3] Water IN from the coolant radiator.

Liquid cooling specifications

- Coolant fluid: System pressure: 110 Kpa (16PSI)
- Thermostat opening: 75°C (167°F)
- Coolant flow: max. 116 L/min @ 7500 rpm to radiator (thermostat fully open).



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Water Pump

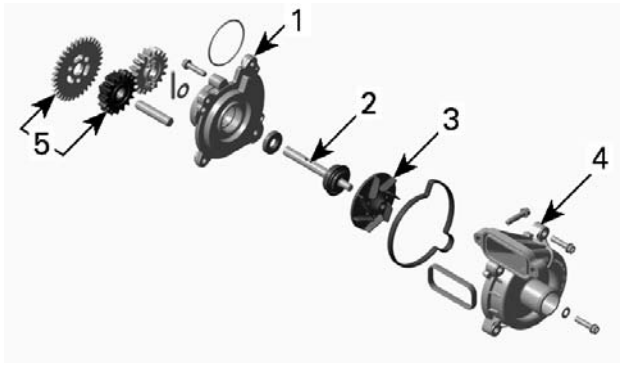
[1] Water pump cover

[2] Water shaft assembly

[3] Impeller

[4] Water pump cover

[5] Water pump drive.



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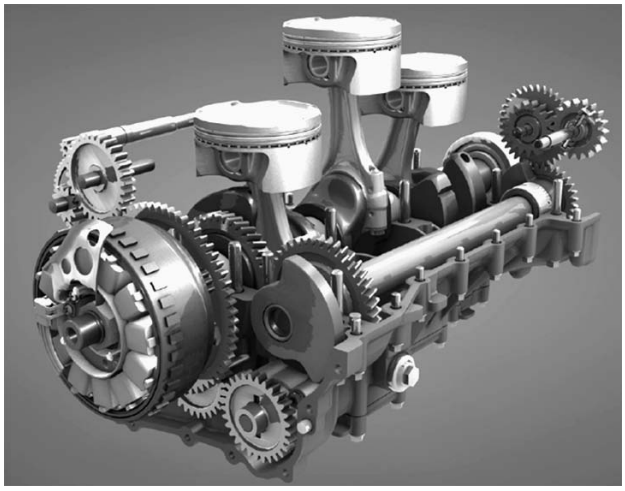
Magneto

By utilizing rare earth magnets the magneto can produce 2.5 times more electrical power than comparably sized magnetos. It can produce 500 watts (35 amps) at 6000 rpm.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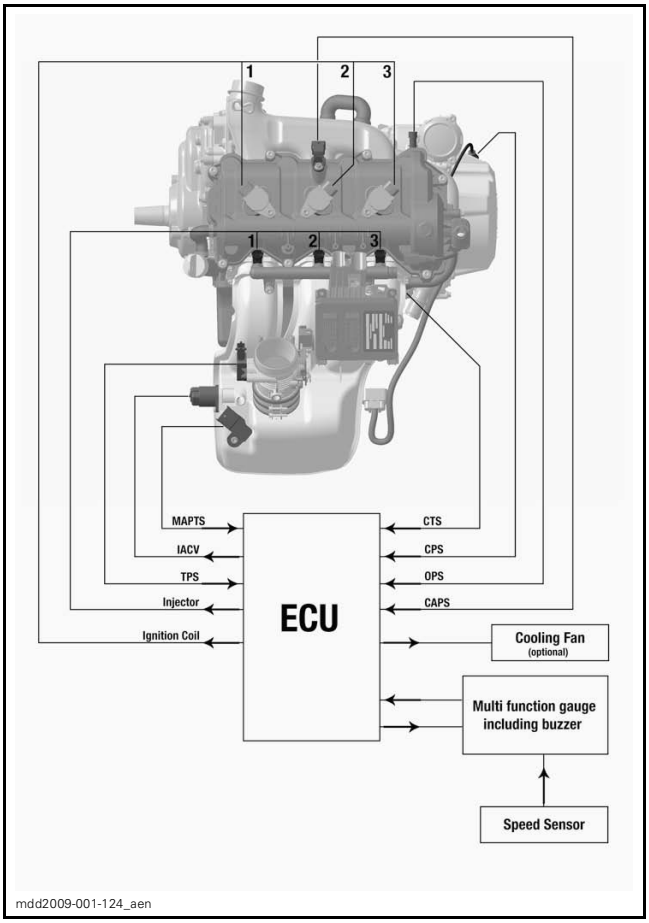
EMS Overview

The EMS Engine management system incorporates an electronic multi-port fuel injection system. The fuel injectors are located right on the intake manifold. The input sensor and output controls are the same as many of our other fuel injection systems.

Sensors :

– CTS (Coolant Temperature Sensor)
– CPS (Crankshaft Position Sensor)
– OPS (Oil Pressure Switch)
– CAPS (Camshaft Position Sensor)
– MAPTS (Manifold Air Pressure / Temperature Sensor)
– IACV (Idle Air Control Valve)
– TPS (Throttle Position Sensor).



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Blow By Vent Valve

A unique feature to the 4-TEC 1203 is the blow by vent valve. To prevent excessive crankcase pressure, the blow by gasses must be vented from the crankcase. To vent these gasses a blow by vent valve is utilized. It is attached to the valve cover on the MAG side.

[1] Check ball

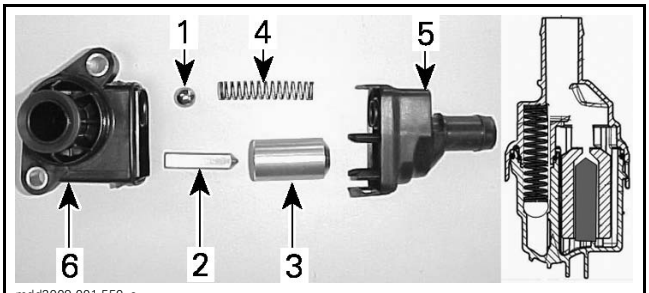
[2] Needle valve

[3] Needle Seat

[4] Spring

[5] Vent Cap

[6] Vent Housing.



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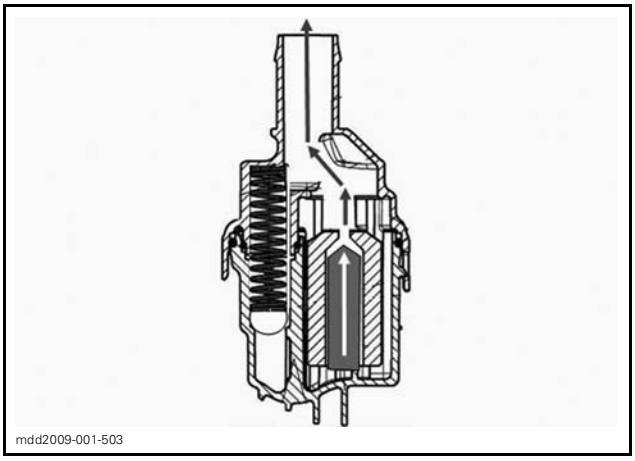
Vent Valve Normal Operation

During normal operation the crankcase gasses pass by the needle valve and are brought back into the air intake stream where they are harmlessly burned.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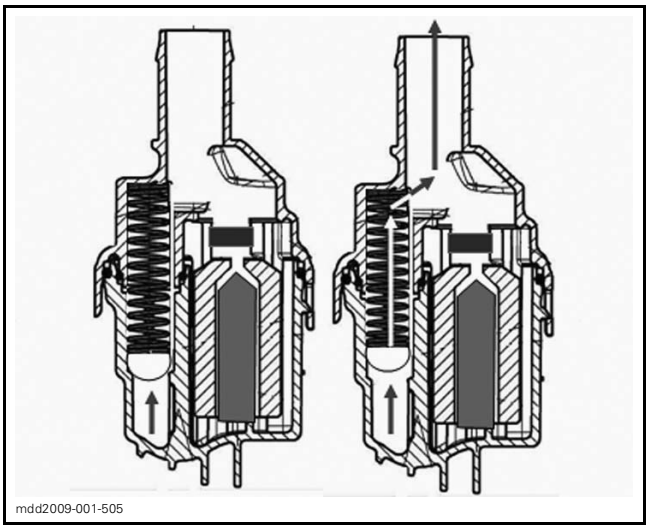
Vent Valve Bypass

If the crankcase pressure exceeds .4 bar (40 Kpa (5.8 PSI) the pressure unseats a check ball and the gasses can bypass the needle valve.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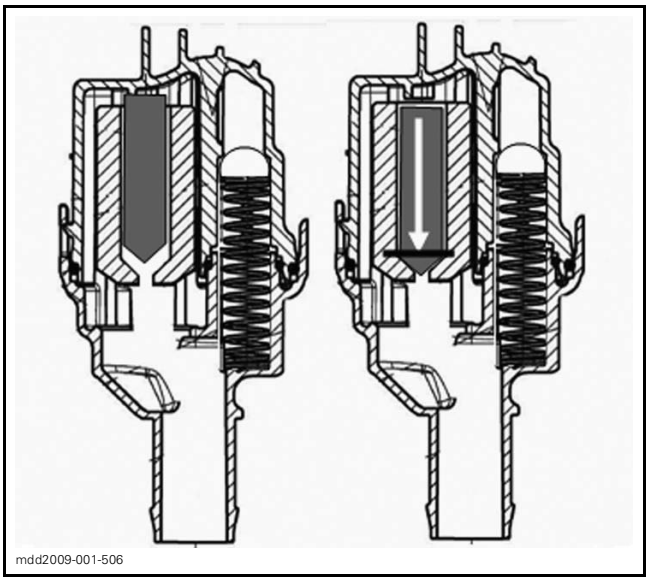
Rollover Protection

In the event of a vehicle rollover, gravity causes the needle valve to seat and no oil will leak out of the engine crankcase.


mdd2009-001-506

Based on the preceding text complete the following:

What happens to a 1203 engine in the event of a vehicle rollover?

☐ Oil will leak out of the air-box

☐ The crankcase vent solenoid shuts off

☐ The blow by vent valve needle will seat

☐ The rollover switch will activate

☐ All of these answers are correct.

The EMS Engine management system incorporates an electronic _____ _____ _____ injection system.

Valve Clearance Adjustment Procedure

Specification :

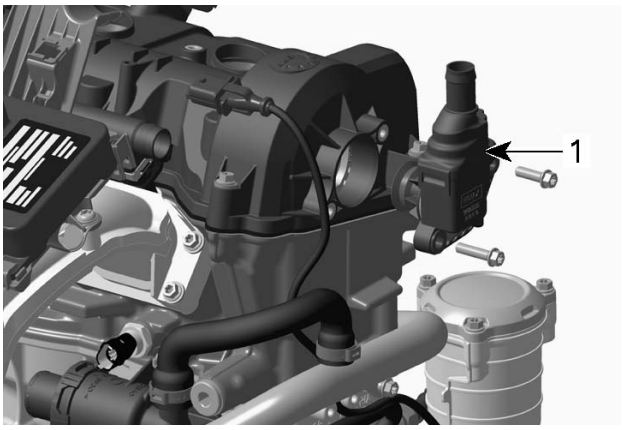
– Intake: 0.15 – 0.25 mm (.006" – .010")

– Exhaust: 0.30 – 0.40 mm (.012" – .016").

Procedure: Remove the stick coils, spark plugs and oil hose to dipstick tube.

Remove blow-by valve **[1]**.

Remove valve cover and spark plug tubes.

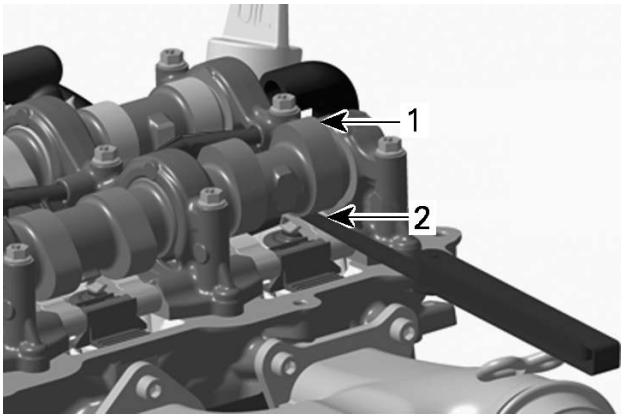


mdd2009-001-101_a

Turn the engine with drive pulley, until the camshaft lobe of the corresponding cylinder is pointing straight up on top **[1]**.

Now measure the valve clearance between the camshaft and the finger follower, using a feeler gauge **[2]**. Camshaft lobe must be on top, during valve clearance check.

If out of specification, adjust the valve clearance.



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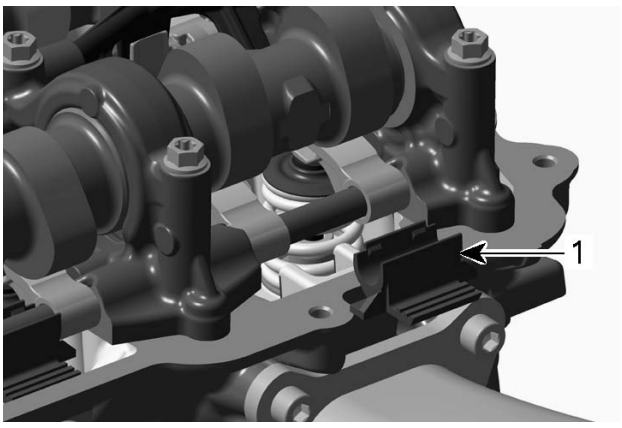
To adjust the valve clearance begin by removing the finger follower lock spacer(s) **[1]**.

Then slide the finger follower to the side to get access to the adjustment shim **[1]**.



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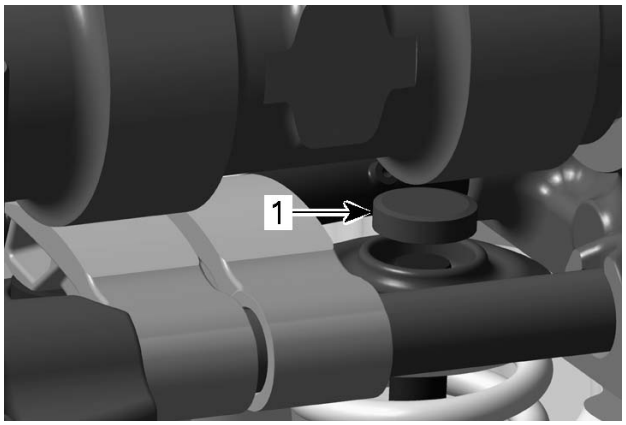
To adjust the clearance select and replace the adjustment shim **[1]** to achieve the correct valve clearance.



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Cam Shaft Timing

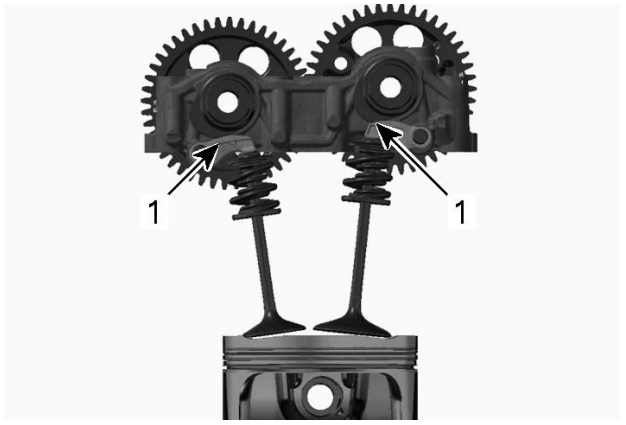
The timing on the 1203 engine is performed while the cam shaft and crankshaft are both locked with cylinder number 2 is at TDC (top dead center) of "valve overlap".

What is valve overlap?

It is important to note that at the end of the exhaust stroke and the beginning of the intake stroke, the intake and exhaust valves are slightly open at the same time with the piston at TDC. This allows some of the inrushing intake air to help scavenge the last of the exhaust gas out of the combustion chamber.

TDC valve overlap position **[1]**.

Both the intake and exhaust valves are slightly open at the same time.



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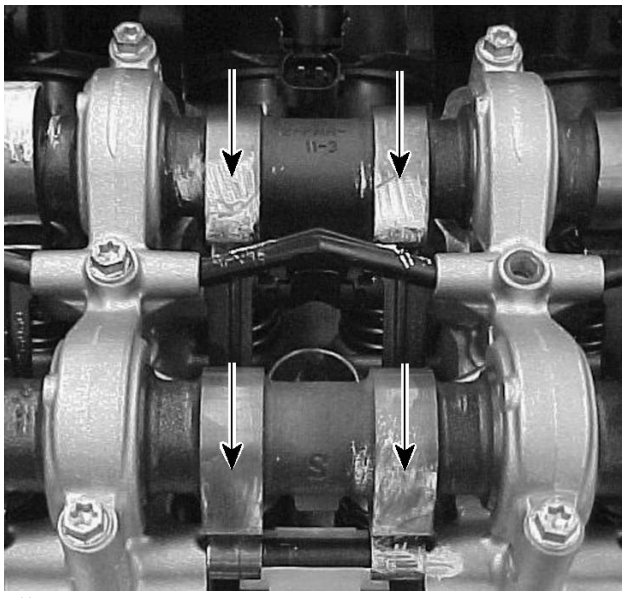
Cylinder Number 2 at Overlap

When cylinder number 2 is at TDC valve overlap, the cam lobes are in this direction.

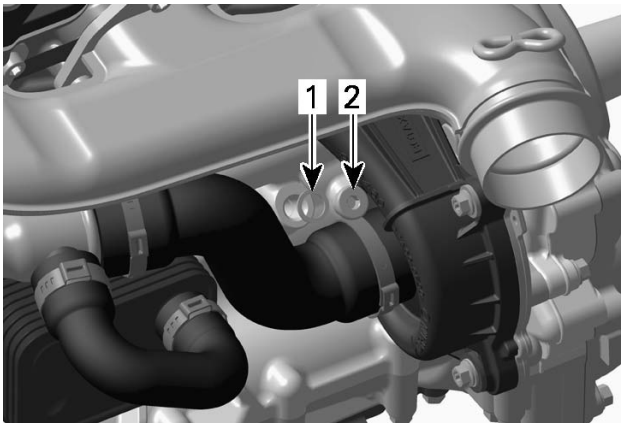
When viewed from the exhaust side.


mdd2009-001-508_a

Assembly Procedure Cam Shaft Timing

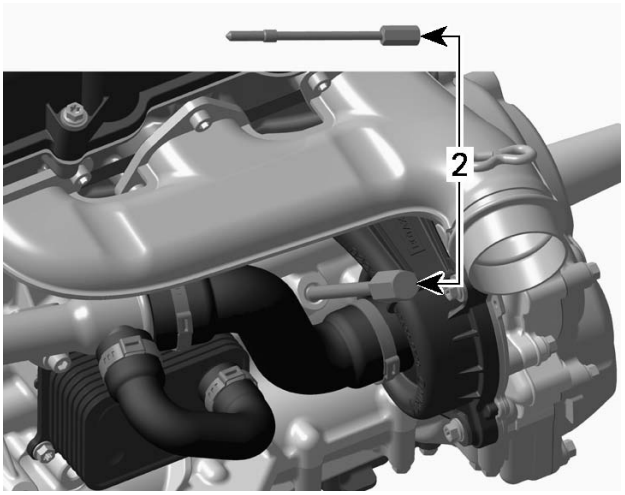
Begin the procedure by locking the crankshaft at TDC on cylinder #2 (center cylinder)!!!

Remove plug screw **[2]** and gasket ring **[1]** of crankcase. (located behind water pump housing).



mdd2009-001-115_a

Next lock the crankshaft by installing the crankshaft locking bolt **[2]**.



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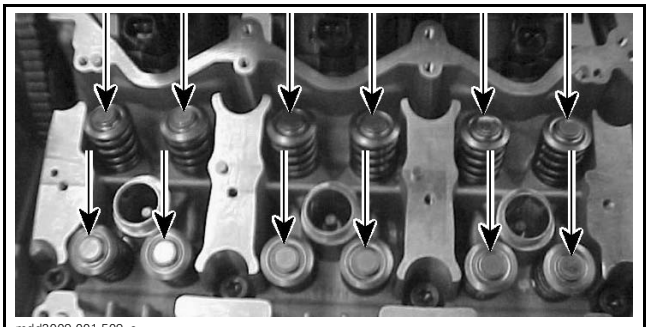
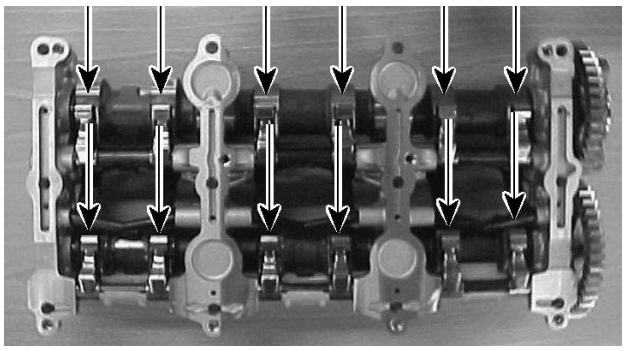
Ensure all the adjustment shims are located in the correct positions on the valves.


mdd2009-001-509_a

Place the cam carrier upside down on the work bench and position the finger followers on the cam lobes as shown.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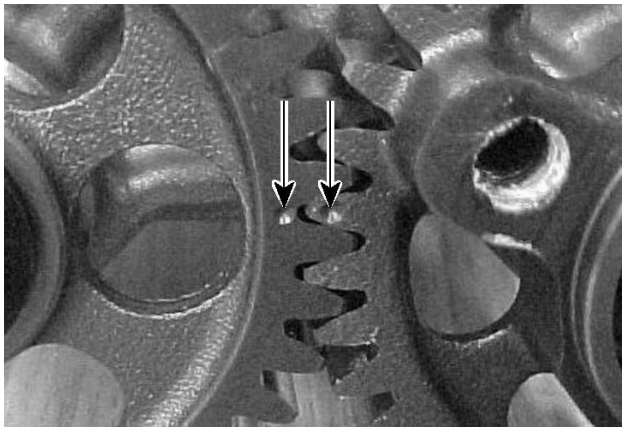
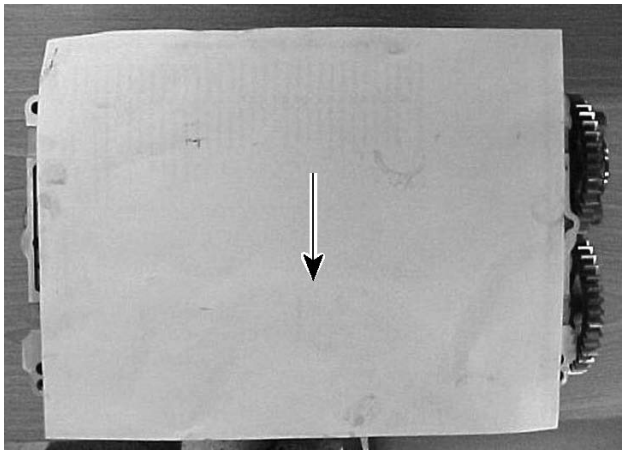
With the cam carrier assembly upside down on a work bench, rotate the cam shaft until the cam gear timing marks align.


mdd2009-001-511_a

Place a heavy gauge piece of paper on top of the finger followers on the cam carrier assembly. This holds them in place during the installation.

Then flip the carrier assembly over and put into place on top of engine.

NOTE: Be careful not to knock any adjustment shims out of position.

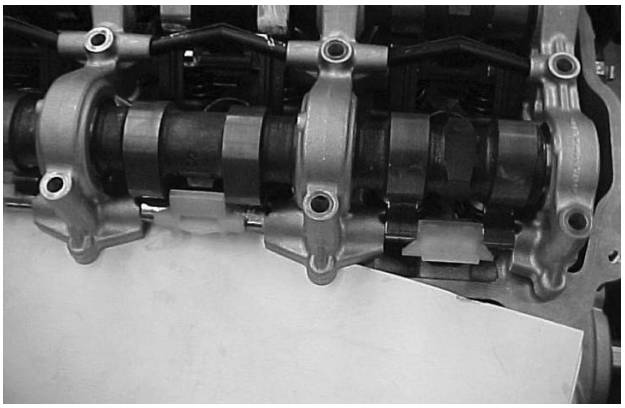

mdd2009-001-512_a

With the cam carrier in place slip the piece of paper out from in between the cam carrier and valves.

NOTE: Be careful not to knock any adjustment shims out of position.

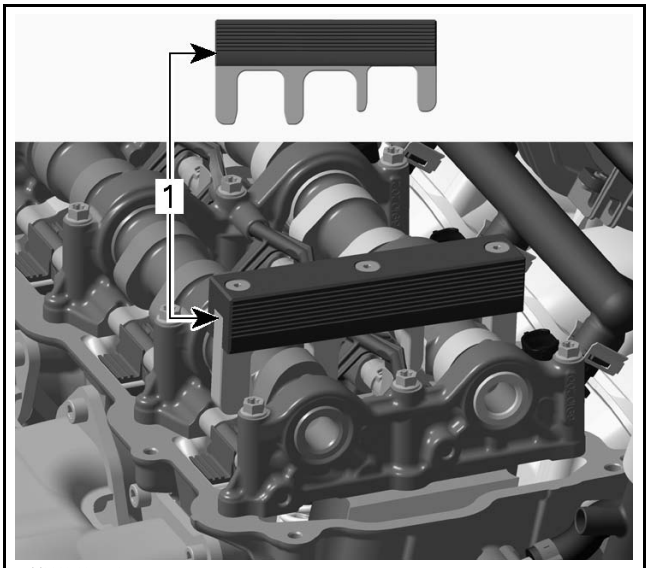
Torque the cam carrier in sequence to the torque specification.

Verify all of the valve adjustments are correct.


mdd2009-001-513

Turn the camshafts until the camshaft locking tool **[1]** can be inserted as shown.

When the crankshaft and camshaft are locked in the proper position, the camshaft drive chain gear can be installed.



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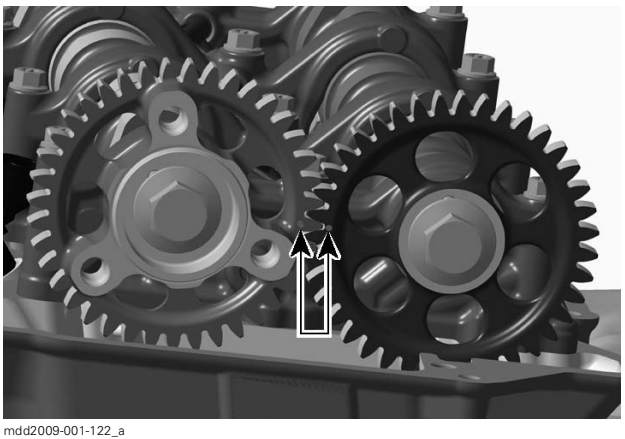
The cam gears marks have to be aligned as indicated.

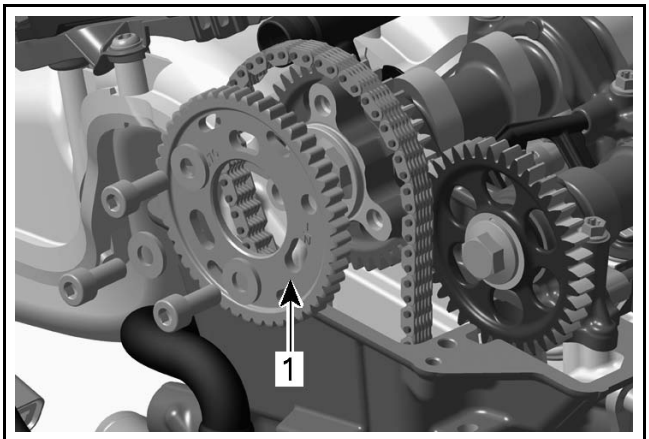
NOTE: The camshaft timing gear marks are underneath the timing chain gear. To check the marks the timing chain drive gear must be removed.


mdd2009-001-122_a

Install the timing chain and drive gear **[1]**.

"Do not" torque the bolts yet.

NOTE: The gear only fits in one position (one hole pattern for screws).



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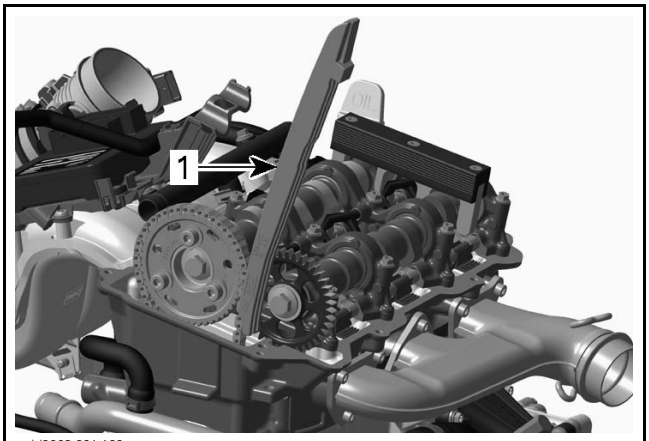
Install the timing chain guide **[1]**.



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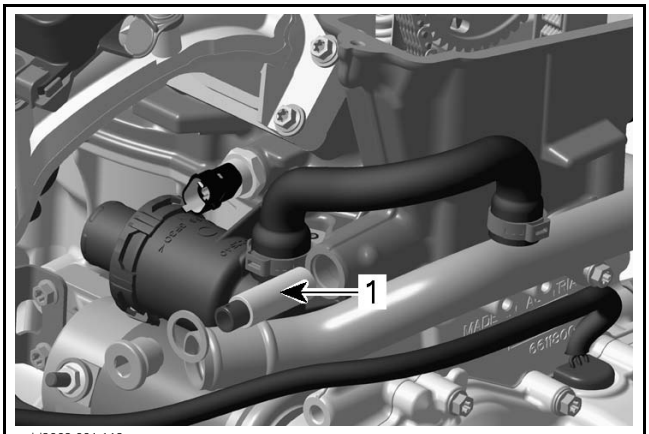
Install the chain tensioner **[1]**.

Finally torque the timing chain gear screws to 30 N•m N•m. (22 lbf•ft).



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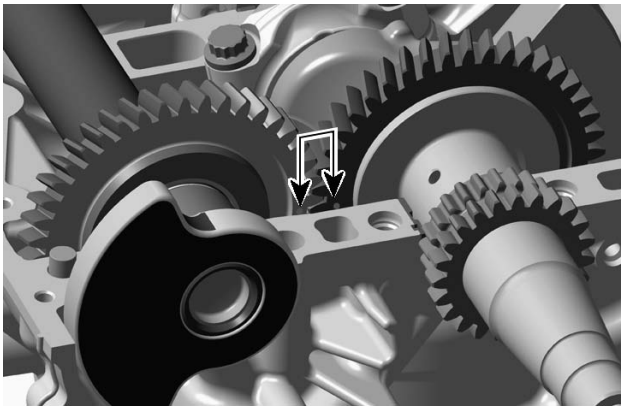
Counter Balancing Shaft Alignment Procedure

The Rotax 4-TEC 1203 has a single counter balancing shaft. To correctly time the counter balancing shaft assembly align the timing marks as shown.


mdd2009-001-123_a

Based on the preceding text complete the following:

What position is the crankshaft and cam shaft locked when performing the cam timing procedure on the 1203 engine?

☐ TDC compression number 1 cylinder

☐ TDC compression number 2 cylinder

☐ TDC compression number 3 cylinder

☐ TDC valve overlap number 1 cylinder

☐ TDC valve overlap number 2 cylinder

☐ TDC valve overlap number 3 cylinder.

To check the cam gear timing marks the _____ _____ _____ _____ must be removed.

Where is the crankshaft locking tool installed on the 1203 engine?

☐ Through the cylinder head

☐ Behind the water pump

☐ Through the magneto cover

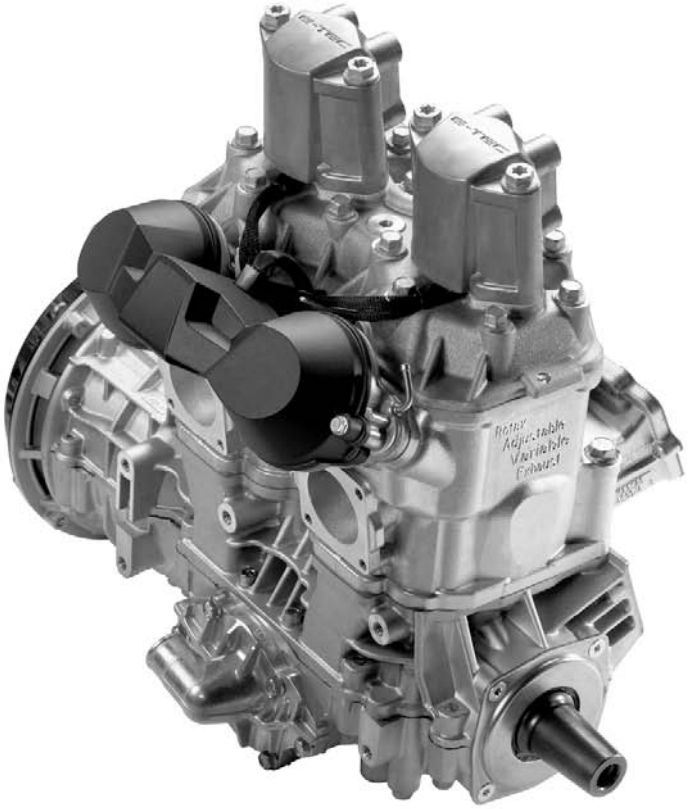
☐ Next to the oil tank

☐ On the crankshaft drive gear.

Technical data:

ENGINE TYPE	ROTAX 1203 4-TEC		ENGINE TYPE	ROTAX 1203 4-TEC
	IN-LINE 3 CYLINDER WITH			
Design	counter balancing		Spark plug gap	0,7-0,8 mm
Function principle	4-stroke gasoline engine		Magneto generator output	490 W @ 5000 rpm
Number of valves	12 valves with finger follower activation		Electric starter	12 V 0,8 kW rare earth starter with high stall torque Starter reduction ratio 31,7
Bore	91 mm		Lubrication system	Dry sump lubrication, replaceable paper type oil filter
Stroke	60 mm		Oil pumps	3 (pressure pump, suction pump, evacuation pump)
Stroke	60 mm		Oil pumps	3 (pressure pump, suction pump, evacuation pump)
Compression ratio	11.0:1		Engine oil	SAE 0W 40 full synthetic oil
Engine performance	94 KW 130 HP @ 7800 rpm		Engine oil quantity	4,0 l first filling (3,5 l service oil change)
Engine torque	112 N•m @ 7500 rpm		Cooling system	Liquid cooling, external water pump, 3-way thermostat
Engine dry weight	60 kg 132 lb		Cooling system pressure	1,1 bar (110kpa) (16 psi)
Engine rpm limit	8500 rpm		Coolant flow	Max. 116 lmin @ 7500 rpm to radiator (thermostat fully open)
	Multi point EFI with			
Fuel injection type	52 mm heated single		Thermostat opening	75°C (167 F)
	throttle body			
Fuel injector quantity	3		Valve timing (at 1mm valve clearance)	Intake opening: 0° before TDC
Fuel pressure	4 bar (400 kpa) (58 psi)			Intake closing: 40° after BDC
Fuel type	Regular fuel 91 RON (min.)			Exhaust opening: before BDC 60°
Idle speed	1100 rpm (1500 rpm fast idle)			Exhaust closing: before TDC 5°
Engine control	VDO Engine Management System		Valve clearance	Intake: 0,15 0,25 mm Exhaust: 0,30 0,40 mm
Ignition system	DI (digital induction), mapped ignition		Valve diameter	Intake: 37,3 mm Exhaust: 31,0 mm
Spark plug	NGK CR8EB			
Oil specification			BRP synthetic 4 stroke oil SAE 0W-40	
Oil filling quantities			New assembled, dry engine: 4 liters	
			Service oil change incl. oil filter change: 3,5 liters.	

E-TEC



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E-TEC

The next few pages are an overview of our new E-TEC technology. For more detailed explanations of each system, and complete troubleshooting information, refer to the *2009 600 HO E-TEC SHOP MANUAL*, (P/N 219 100 303)

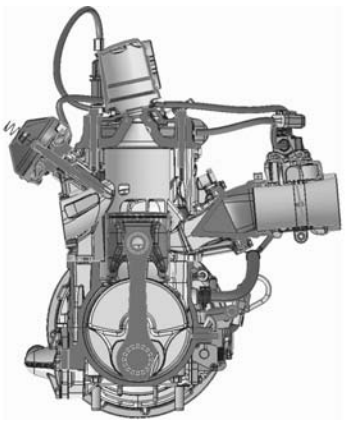
Adapted for rigorous use on Ski-Doo snowmobiles from the proven reliability of BRP E-TEC technology used on Evinrude outboard engines, E-TEC is an amazing system that offers real benefits for Ski-Doo snowmobilers. E-TEC is a simple system that provides the high specific power of a light weight two stroke engine while greatly reducing emissions and lowering fuel and oil consumption.

Benefit's of E-TEC technology:
- 78% better fuel economy than the closest EFI (22 mpg versus 14 mpg)
- 82% better oil economy than Polaris 600 CFI (500 kmL versus 275 kmL)
- 3 years spark plug warranty (or up to 10000 km or 6600 mi)
- Easy cold start, one pull start
- Virtually no smoke and smell
- Incredible smooth idle
- Less emissions than any 2 stroke (even some 4 stroke)
- Cleaner burning
- Lowest EPA emission level of all 2 strokes
- No battery is required
- High altitude compatible without fuel and oil calibration change or idle adjustment
- Common engine block with CARB or SDI
- Automatic summarization function.

Three simple lines can sum up the benefits of E-TEC technology:
- Fuel is injected directly into the combustion chamber, so it's the cleanest and most fuel efficient 2 stroke on the market
- Fuel is sprayed directly at the spark plug, so it starts first pull every time
- It has a high tech magneto and ECM, so it doesn't need a battery to start or run.

Unique Features

The most unique features of this engine are:
- The E-TEC voice coil injector
- The 55 volt 1200 watt magneto and electrical system
- An electronic oil pump
- The 3 D Rave system with electronic position feedback
- A fuel cooled ECM.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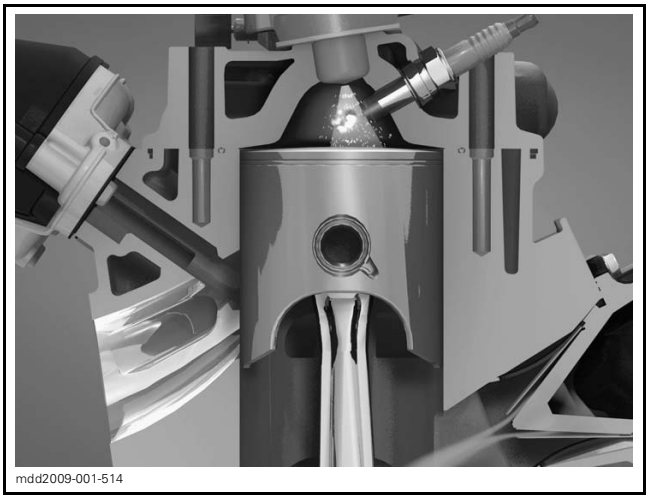
Based on the preceding text complete the following:

A unique feature of the E- TEC is the _____ volt _____ watt _____.

At high altitude there needs to be no _____ and _____ calibration change or _____ adjustment.

Refer to the *2009 600 HO E-TEC SHOP MANUAL* Section 05 Subsection 01 for more information and to assist in completing the exercises on the following subject.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E-TEC Direct Injection

One E-TEC injector is mounted on top of each cylinder head with its nozzle inside of the combustion chamber. The injector injects a fuel plume directly into the combustion chamber.

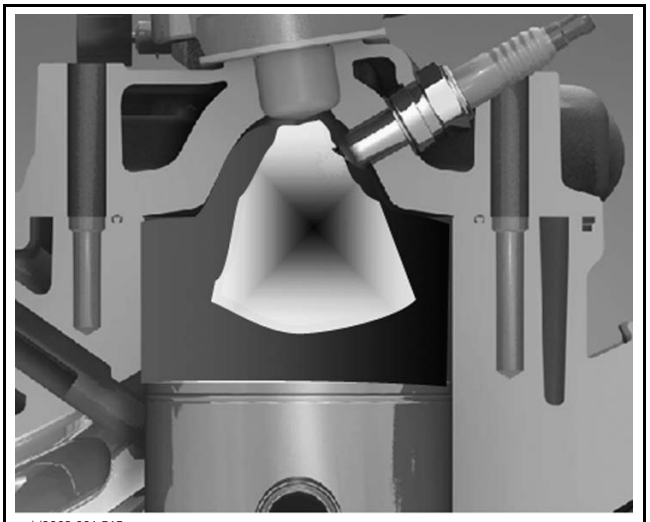
There are several advantages to this direct type of fuel injection:

– Since the fuel is directed at the piston dome, the piston stays cooler with less fuel
– Fuel is sprayed directly at the spark plug electrode, so it starts first pull every time
– No fuel passes through the crankcase, so less fuel is washed off of the parts, lubrication is better, less oil is consumed and there is less visible smoke
– At idle, stratified charge fuel combustion is utilized, so the fuel consumption of this 600 cc engine is as about as much as a 200 cc engine.

Light Load Stratified Charge Combustion

Stratified charge mode is used from idle up to clutch engagement rpm. In this mode an extremely small fuel plume is injected into the combustion chamber at just before Top Dead Center. By using stratified charge combustion fuel consumption and emissions are greatly reduced. In addition to producing better idling and less smoke.

The engine remains in this mode up to clutch engagement speed. (approx 2% TPS opening) Beyond this rpm, the fuel charge becomes homogeneous.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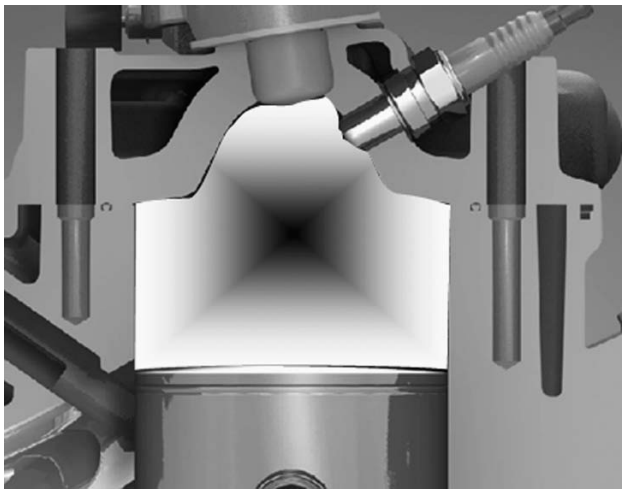
Full load Homogeneous Charge Combustion

Once engine rpm is raised above clutch engagement the injection event changes to a homogenous charge mode. In this mode the fuel plume fills the entire combustion chamber with the proper air fuel ratio required for the load, rpm and rate of acceleration. The emissions are still very low, and fuel consumption is better than all previous 2 strokes, and very similar to any fuel injected 4 stroke.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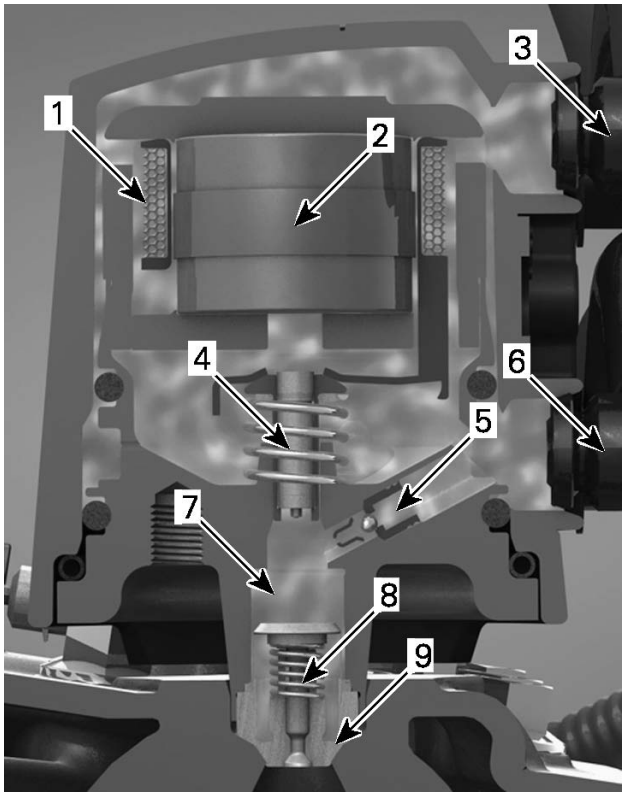
Injector Principle

A voice coil is the key to the operation of the E-TEC injector. A voice coil works similarly to a speaker. Both positive and negative electrical signals are used to operate the injector. The polarity of the current applied to the voice coil determines in which direction the plunger moves.

This eliminates the need for a very heavy return spring thus reducing the amount of current required to activate the injector and allowing the injector to cycle much faster. This results in the ability to operate the engine at a very high rpm. (Up to 10,000 rpm.).

[1] Voice coil
[2] Magnet
[3] Outlet fuel
[4] Plunger
[5] Check valve
[6] Inlet fuel
[7] Pumping chamber
[8] Needle
[9] Nozzle.



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Based on the preceding text complete the following:

The _____ of the _____ applied to the voice coil determines in which direction the plunger moves.

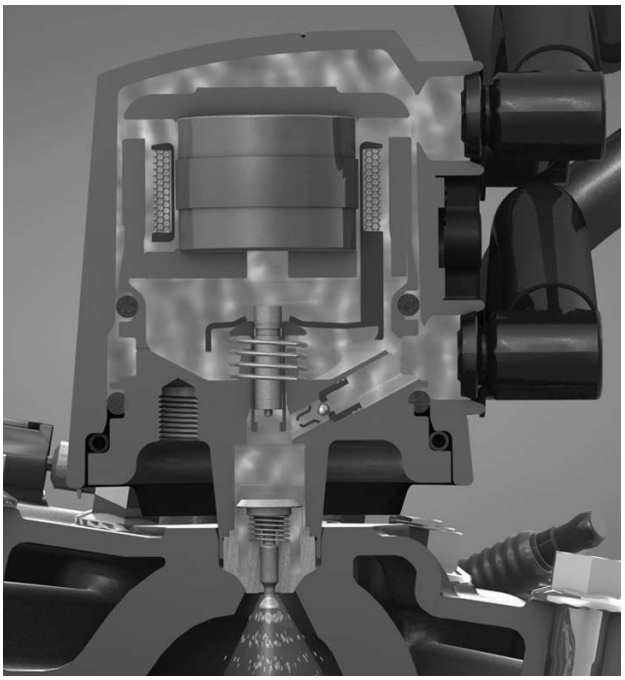
The engine remains in stratified charge mode until what engine rpm?

☐ 6500 rpm
☐ Clutch engagement speed
☐ 4800 rpm
☐ 3-D RAVE mid position opening rpm.

Injector Operation

When a positive voltage is supplied to the voice coil by the ECM, the injector plunger moves towards the spring loaded injector needle. As the injector plunger moves, pressure is built up in the pumping chamber. When the pressure reaches approximately 4137 kPa (600 PSI), the injector needle spring strength is overcome and the needle opens. Then fuel injection into the combustion camber takes place.

To bring the injector plunger backward to its rest position, voltage is cut and the return springs starts to close the injector needle and plunger. A brief negative voltage is supplied to the voice coil to move the injector plunger faster. Near the end of the return stroke, a brief positive voltage is applied to "brake" the injector plunger. This results in a quieter operation of the injectors.



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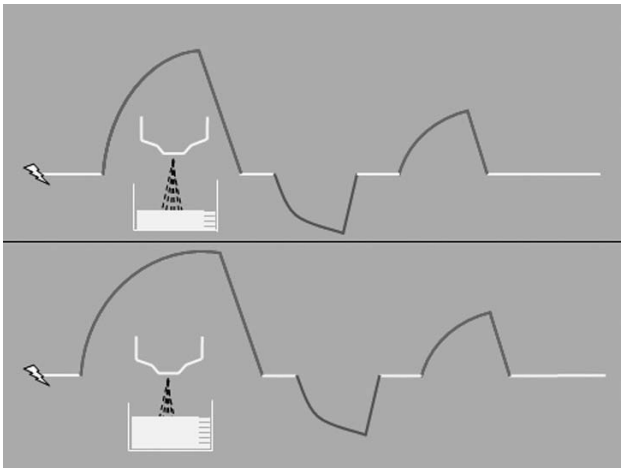
Fuel Quantity

The quantity of fuel injected is controlled by varying the injector plunger stroke. The longer the duration of the voltage pulse supplied to the voice coil, the greater the distance the injector plunger travels, thus the greater the amount of fuel injected into the combustion chamber.

The injectors work on the 55 Vdc system voltage.



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E-TEC injector nozzle

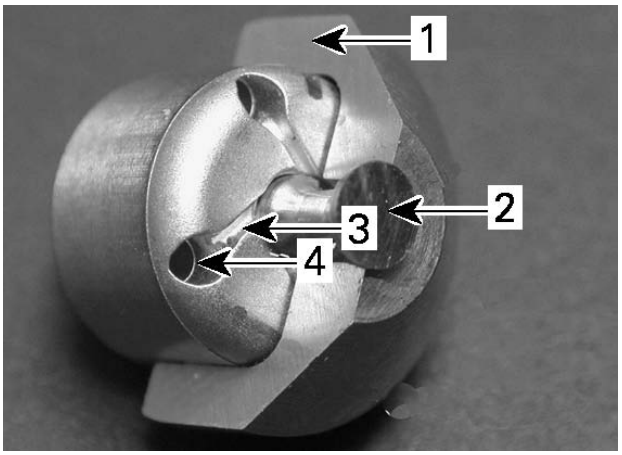
The E-TEC injector utilizes a swirl effect nozzle for atomization of the fuel sprayed into the combustion chamber.

[1] Nozzle body

[2] Needle

[3] Tangential swirl channel

[4] Swirl insert.



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Based on the preceding text complete the following:

Fuel is injected into the combustion chamber at approximately _____ Kpa (_____PSI).

The quantity of fuel injected is controlled by _____ the _____ _____ _____.

How many volts do the injectors require for operation?

☐ 12 Vdc

☐ 36 Vdc

☐ 55 Vdc

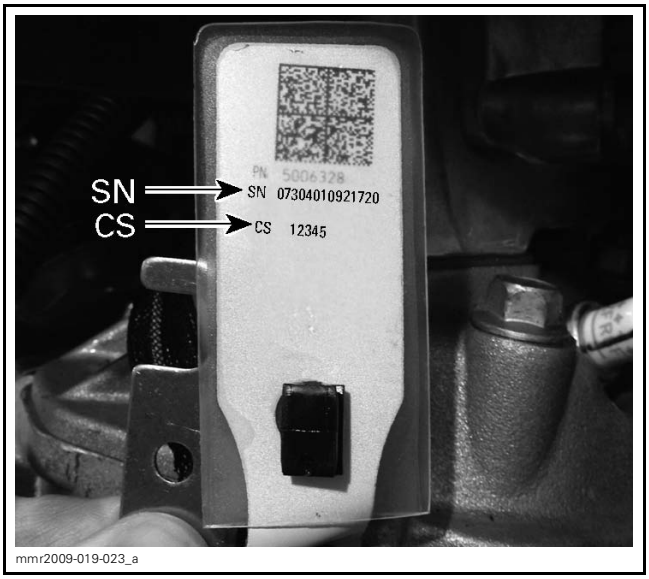
☐ 105 Vdc.

Injector Tag

Each injector is flow checked and calibrated to ± 1% of fuel flow (there can be a difference of ± 5% fuel flow between injectors). The injectors electrical and flow characteristics are registered throughout all its operating range in a calibration file. When an injector is replaced, the matching calibrated file must be loaded in the ECM using BUDS. so that the ECM properly controls the injector.

SN :SERIAL NUMBER

CS :CHECKSUM NUMBER



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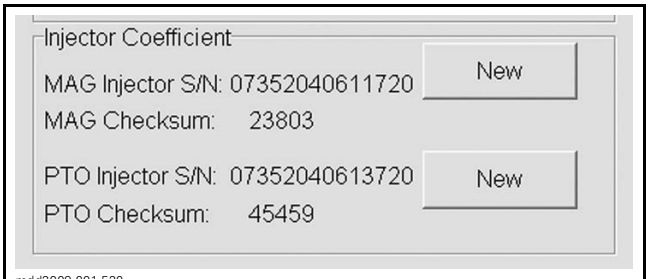
Fuel Injector Position Validation

For troubleshooting or when reinstalling a used Injector, refer to the *BUDS SETTINGS PAGE* to confirm the proper injector is on the correct cylinder by verifying the serial number. Otherwise, improper idling or higher fuel consumption may occur.



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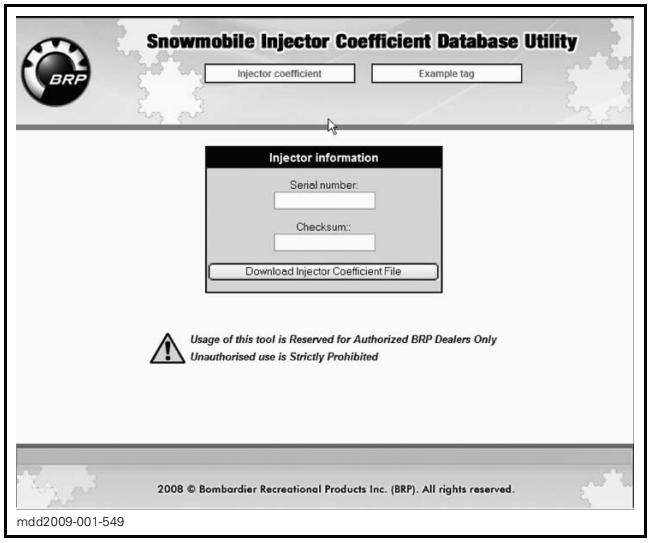
Injector Coefficient File

When replacing an injector to obtain a new calibration file follow theses steps in conjunction with the *SHOP MANUAL* procedure.

– Note the serial number and check sum number on the injector tag
– Use BOSSWeb to access the Injector Coefficient Database Utility
– Get the matching calibration file using the injector information
– Save the calibration file to your PC computer in the folder: C:\ProgramFiles\BRP\BUDSCommon \ InjectorCoefficients
– On the BUDS settings screen click on the "New" for the correct cylinder
– Find the correct file and load it to the ECM.

NOTE: Every time the ECM data is read or when a saved .mpem file is opened, the injector calibration files are automatically stored on your PC computer under a folder that is common to all versions of BUDS: C:\Program Files\BRP\BUDSCommon\InjectorCoefficients. If BUDS is uninstalled, the files won't be deleted. If you ever replace an ECM from which you were not able to read the data, you could look at the injector serial numbers and load the stored calibration files into the ECM from the common files without the need to download the file from BOSSWeb.



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Based on the preceding text complete the following:

If an ECM is replaced the injector coefficient file MUST be downloaded from BOSSWeb's injector file lookup utility.

☐ TRUE

☐ FALSE.

Which statement is correct concerning the injector coefficient files?

☐ The serial number and check sum are needed to obtain the file

☐ With the incorrect file installed, improper idling or higher fuel consumption may occur

☐ Each time a .mpem file is opened the coefficient files are stored on your PC computer

☐ All of these answers are correct.

Injector Service Notes

– Ensure to keep the same injector on the same cylinder head side
– Improper torque can cause a leak around the nozzle tip
– A combustion leak around the nozzle will overheat the nozzle
– A black carbon line will be seen past the nozzle if leaking
– The crush ring must be replaced if the injector is changed in housing or it can leak
– A plastic shim is needed between the injector and the cylinder head to prevent heat from damaging the injector

– Be careful not to break the injector hoses on R+R
– Will start on the first pull to - 30°C (-22°F) At – 40°C (-40°F) it may take two pulls
– If the fuel system is totally dry it is hard to start – Run the fuel pump with BUDS to fill the system
– If engine is too cold -30 to -40 °C (-22 to - 40°F) the rpm is limited to 7000 rpm it will allow normal operation after +20°C (68°F).

Refer to the *2009 600 HO E-TEC SHOP MANUAL* Section 05 Subsection 01 complete the following:

Where is the TPS master position screw on the E-TEC throttle body adjusted to?

☐ Until the TPS reads 4.1 degrees of throttle opening

☐ So that it does not contact the throttle plate lever

☐ Until the TPS reads 3.9 percent of throttle opening

☐ 1.5 turns after it contacts the throttle plate lever.

While viewing the throttle opening in BUDS on an E-TEC, at WOT (wide open throttle) the reading should be in between 95-100 %.

☐ TRUE

☐ FALSE.

When performing the injector control circuit signal test, how is the multi-meter set and what is the measurement specification?

☐ DC volts – 30- 50 VDC

☐ AC volts – 30 50 VAC

☐ DC Hz – 2 Hz

☐ OHM – 0 – 2.0 Ω.

Fuel System

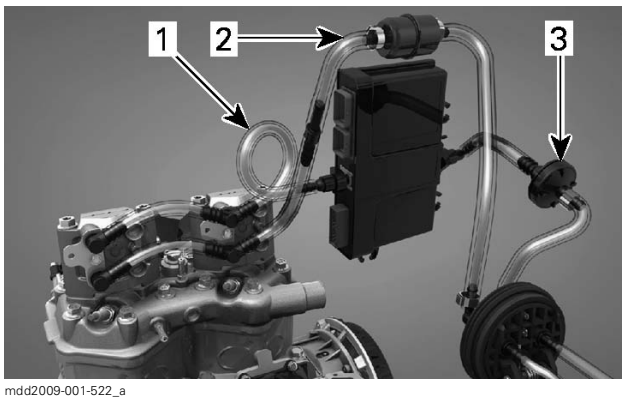
E-TEC utilizes a return type fuel system that has an electric fuel pump and an external pressure regulator. This return system is also utilized for two unique functions. One is to cool the injector components and the other is to cool the ECM internal components.

[1] Top Return (outlet) line has loop

[2] Bottom feed (inlet) line has fuel filter

[3] Fuel pressure regulator.

NOTE: There is a 5°C (41°F) degree difference in temp between the inlet and outlet line of the injector. If the hoses to injector are reversed the injector will function but can overheat.



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Fuel Pump

The fuel pump is a 12 volt pump but it is PWM (Pulse Width Modulated) with 55 volts. The pulse width modulation is regulated at a duty cycle of 17% which is about 8 Volts until 2300 rpm. This is to lower the electrical load at idle. After 2300 rpm the duty cycle is 25% and the voltage is about 13.8 volts.

The fuel pressure is tested at the ECM outlet line. The fuel pressure is 3 bar (300 KPA, 44 PSI) at 2300 rpm, but at idle the fuel pressure might show 2.5 bar (250KPA, 36 PSI).

NOTE: The E-TEC fuel pump must be utilized as it does not have an internal capacitor as does the SDI fuel pump. If the incorrect fuel pump is installed, the ECM will set a circuit to ground fault code and shut the pump down.


mmr2008-030-019

Based on the preceding text complete the following:

What can happen if the top Return (outlet) line and bottom feed (inlet) line on the E-TEC injector is reversed?

☐ The injector can overheat

☐ The engine can suffer serious damage

☐ The inlet line can break

☐ The outlet line can break

☐ All of theses may happen.

What voltage is the fuel pump operated at on the E-TEC?

☐ 35 and 55 volts DC

☐ PWM 8 and 13.8 volts DC

☐ PWM 12 volts DC

☐ None of these answers are correct.

The E-TEC fuel pressure is _____ bar (_____ KPA, _____ PSI) at 2300 rpm,

Refer to the *2009 600 HO E-TEC SHOP MANUAL* Section 05 Subsection 01 complete the following:

When testing the EGTS (Exhaust Gas Temperature Sensor) what should the resistance in ohms be at 25°C (77°F)?

☐ 679 Ω

☐ 420 Ω

☐ 313 Ω

☐ 220 Ω.

What tool is used to remove an E-TEC injector from its housing?

☐ A slide hammer

☐ Removal tool (P/N 529 036 217)

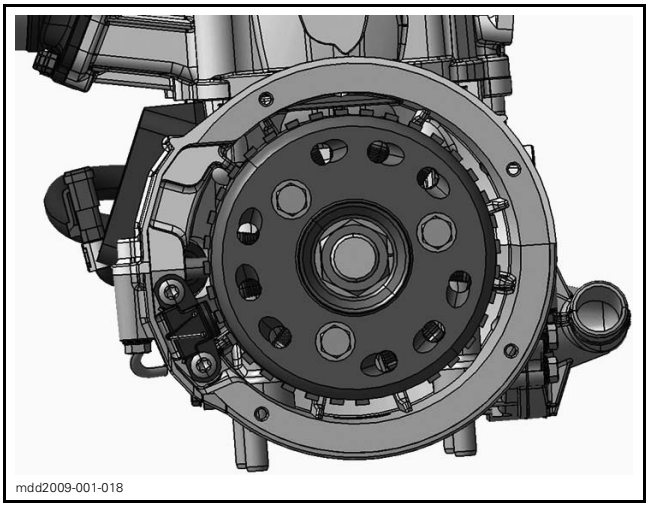
☐ A 6x1mm jacking screw

☐ No tool is required.

Refer to the *2009 600 HO E-TEC SHOP MANUAL* Section 04 Subsection 01 for more information and to assist in completing the exercises on the following subject.

1200 WATT magneto

The E-TEC charging system is unique in that it produces the high voltage necessary for the E-TEC injectors at low rpm's and without the need for a battery in the system. The system is about the same size as a conventional magneto, however instead of the three coils wired into a 3 phase circuit, the coils have 3 single phase individual output's that go directly to the ECM. In addition, instead of the magneto producing the conventional 12 volts it produces 55 volts.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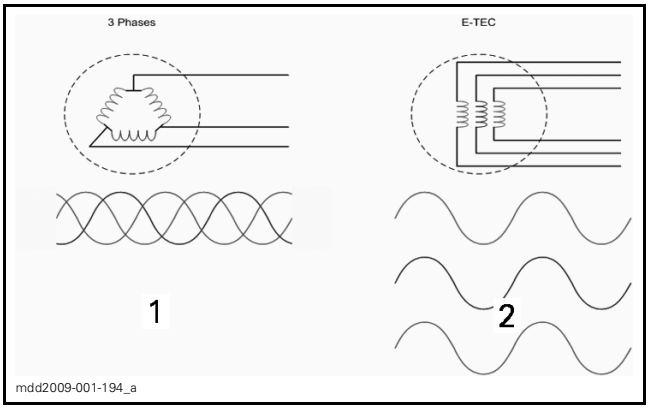
This diagram depicts the basic wiring schematic of a traditional 480 Watt 12 magneto as used on engines such as our 600 SDI.

[1] Traditional Delta wound 3 phase 480 Watt 12 volts stator

[2] E-TEC 1200 Watt 55 volts electrical system. (3 individual single phase windings)



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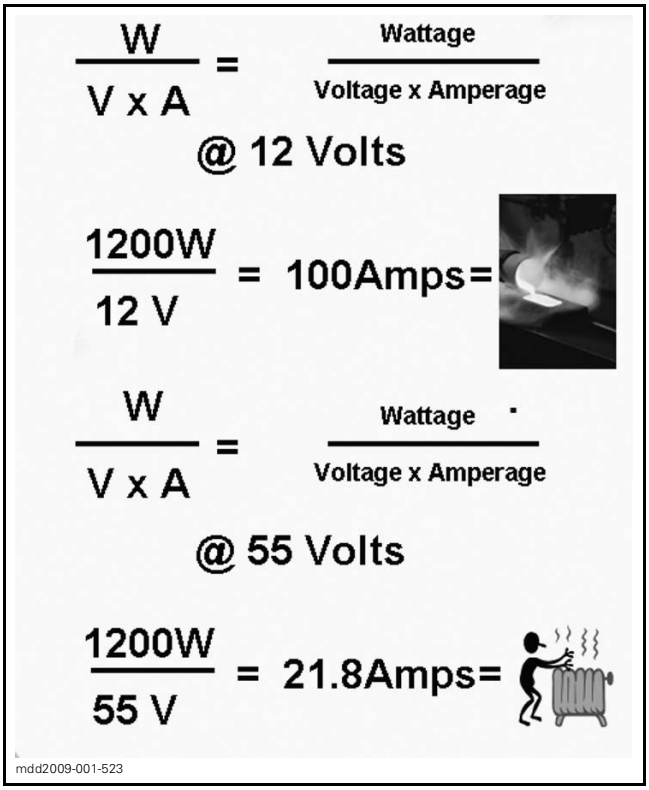
Why 55 volts

There is a direct relationship between the wattage (power) something produces or consumes and the amperage. The more Amperage there is the more heat that is produced.

The higher the voltage the less amperage is needed to have the same amount of wattage. For example if a component consumed 100 watts of power at 12 volts it would draw 8.3 amps. The same component at 55 volts would only require 1.8 amps.



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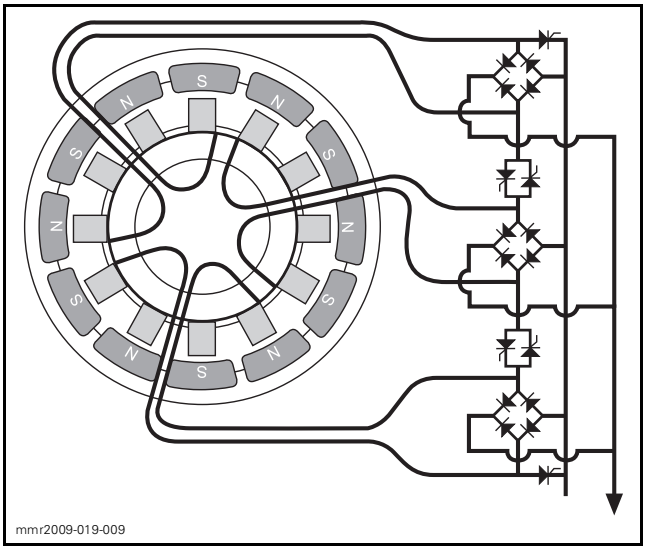
Magneto and Series Parallel Switch

The ECM has a sophisticated system of electronic circuitry to allow the rectification of the magneto's output to be switched from series to parallel to optimize the output of the magneto to the needs of the E-TEC's electrical demands of the fuel pump and injectors.

At lower rpm the 3 windings of the magneto are connected in series to increase the voltage and at higher rpm they are connected in parallel to increase the amperage.



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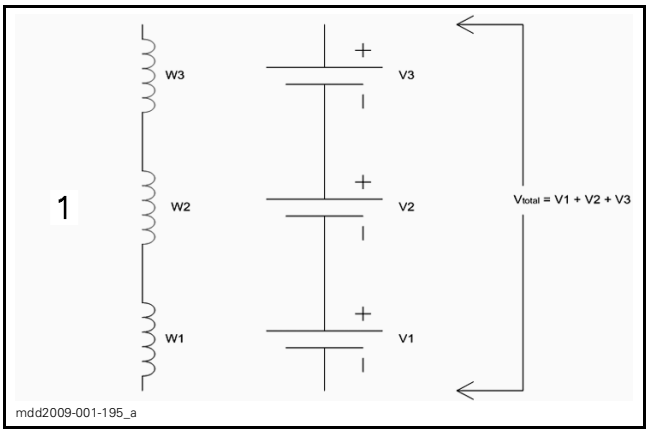
Series Connection

When the engine is first beginning to turn at low rpm there is low voltage. So to build the 55 volts up very rapidly for starting and low rpm operation. The windings are connected in series. This allows the individual windings to combine or add up their voltage.



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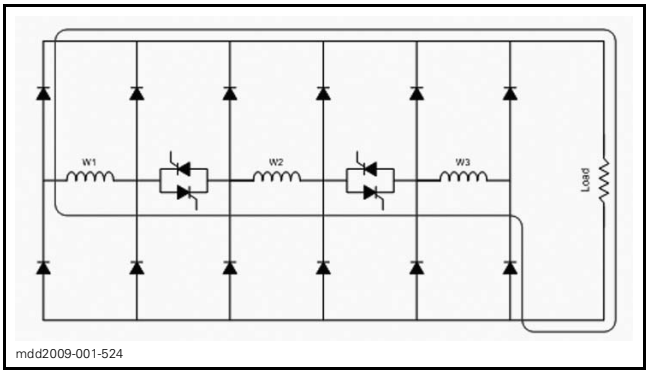
Voltage winding # 1 + Voltage winding # 2 + Voltage winding # 3 = Total voltage.



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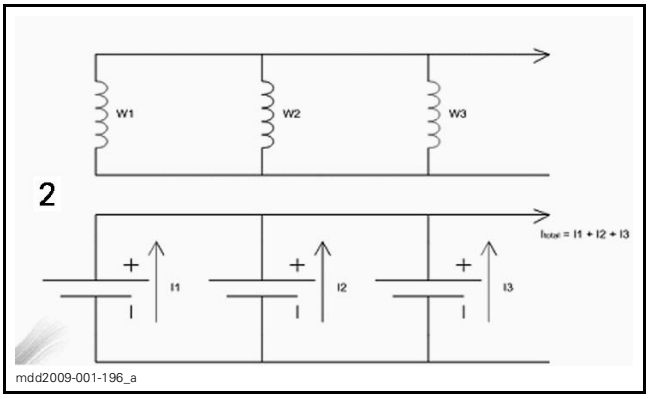
Parallel Connection

Just above idle each winding is capable of producing its own 55 volts. At that point a switch is made to connect the 3 individual windings in parallel. This allows the amperage (current) of each winding to be combined. The magneto can then supply all the current needs for vehicle operation throughout the rest of the rpm range.

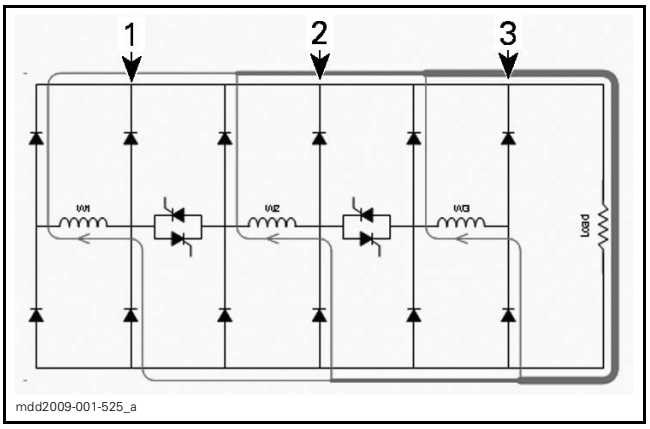


Amperage winding # 1 + Amperage winding # 2 + Amperage winding # 3 = Total Amperage.

[1] Amperage

[2] More amperage

[3] Even More amperage.



Based on the preceding text complete the following:

Why is a 55 volt electrical system utilized on the E-TEC?

☐ The high pressure fuel pump requires 55 volts

☐ To lower the amperage (current) of the magneto

☐ It is more cost effective than a 12 volt system

☐ All of these answers are correct.

On an E-TEC at lower rpm the 3 windings of the magneto are connected in _____ to increase the _____ and at higher rpm they are connected in _____ to increase the _____.

Which statement is correct concerning the E-TEC magneto.

☐ It is a 3 phase delta wound magneto

☐ It is a 3 phase wye (Y) wound magneto

☐ It is three separate single phase windings

☐ None of these answers are correct.

ECM (Electronic Control Module)

The ECM is the computerized brain of this sophisticated high voltage and high amperage system that allows the E-TEC injectors to operate. It performs up to 8000 calculations per second. The ECM reads the input signals from different sensors which indicate engine operating conditions at micro-second intervals. Signals from these sensors are used by the ECM to determine the injection and ignition parameters. The crankshaft position sensor (CPS) and the throttle position sensor (TPS) are the primary sensors used to control the injection. Other sensors (like temperature sensors, etc.) are used as secondary input. In addition it contains other components such as the voltage regulator, series to parallel switch, DC to DC converter, accessory relay and the lighting relay.

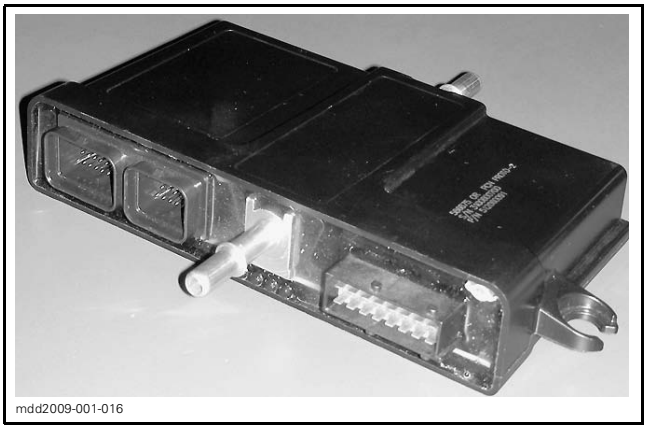
NOTE: A unique feature of the ECM is that the internal components are cooled by fuel as part of the open loop fuel system.


mmr2009-019-004

New ECM Replacement

If the ECM is replaced ensure that the following is entered and or reset with BUDS.

- Customer information
- Identification numbers
- DESS key learning
- 0 TPS learning
- Mid rave position learning
- Break-in counter resetting (If needed)
- Oil pump offset
- Ignition timing offset
- Injector coefficient learning
- Oil pump priming (If needed)
- Software / calibration flashing (If needed).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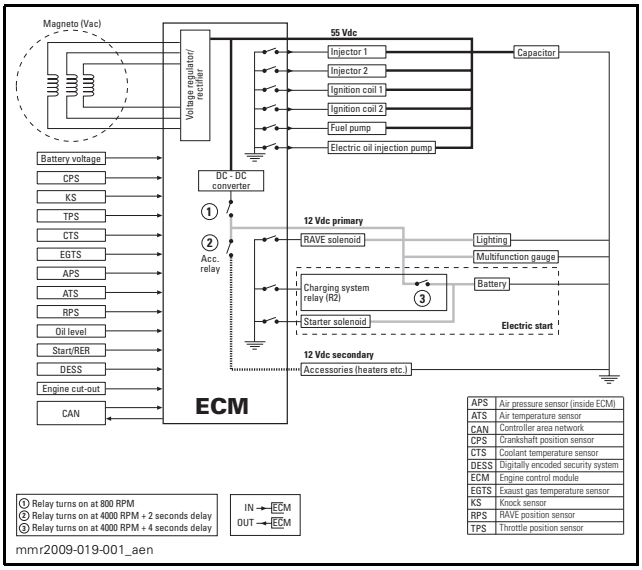
DC to DC Converter

The basic output is regulated to 55 Volts for supplying the injectors, ignition coils, fuel pump and oil pump. However, the fuel pump is a 12 volt component so it is PWM (pulse width modulated) by the ECM to a lower voltage.



In addition to the 55 volt circuit there is a DC to DC converter in the ECM to lower the voltage to operate the 12 volts accessories. There are two categories of 12 volt accessories the primary and the secondary.

- RAVE solenoid
- Lights
- Gauges
- Battery charging
- Starter
- Starter relay.

12 volt Secondary Accessories,

- Thumb Warmer
- Heated grips
- Etc.

NOTE: The 12V accessories shut down at idle.

Starting sequence

- Stator produces voltage
- ECM wakes up
- ECM activates fuel pump @ 150 rpm
- Capacitor charges for injectors and ignition
- Crank sensor detects position in 1/3 of turn
- Injection and ignition spark occur
- Engine running
- 12 volt primary accessories @800 rpm
- Engine idles @1450 rpm
- Switches from series to parallel @1550 rpm
- Secondary accessories @ 3800 rpm.

NOTE: The capacitor drains through the DC to DC converter in 20 seconds – However be careful it is charged by the battery when connected to BUDS.

Based on the preceding text complete the following:

There are two categories of 12 volt accessories, the _____ and the _____.

Which of the following are 12 volt primary accessories on the E-TEC?

☐ Gauges

☐ Heated grips

☐ Thumb Warmer

☐ All of these are primary accessories.

Refer to the *2009 600 HO E-TEC SHOP MANUAL* Section 05 Subsection 01 complete the following:

You are performing the ECM power supply troubleshooting quick test. While viewing the system voltage on the BUDS monitoring screen, what is the minimum voltage required while cranking?

☐ 25 Vdc

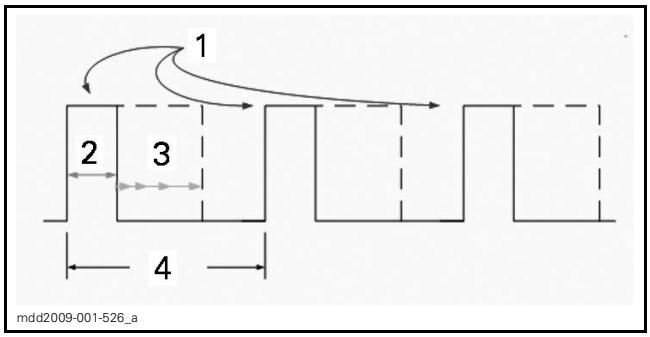
☐ 25 Vac

☐ 30 Vdc

☐ 45 Vdc.

PWM (Pulse Width Modulation) (Full Voltage)

Pulse-width modulation (PWM) is how output components like a fuel injector are controlled. It involves turning on and off a signal to the component for a certain length of time. It is it usually measured in milliseconds but can also be represented as a percentage of "on" time called a Duty Cycle. For example, when used to control a fuel injector, the shorter the pulse width, the less fuel is injected. As the rpm increases the ECM increases the amount of "on" time and more fuel is injected.



[1] Pulses

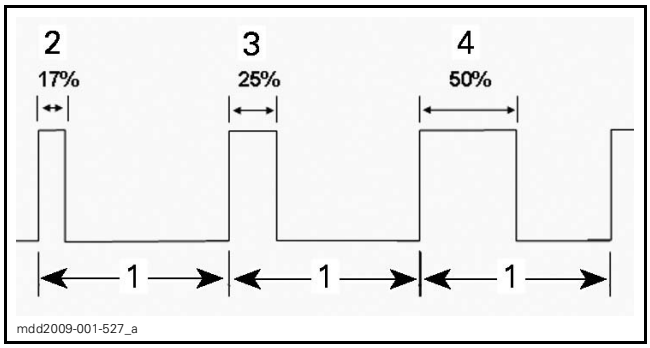
[2] Width

[3] Modulation

[4] Fixed time period.

Duty Cycle

Duty Cycle is the total percentage of "on" time of a component during a fixed time period. It may be one pulse in that time period or multiple pulses added up and calculated into the percentage.



[1] Fixed time period

[2] 17% on time

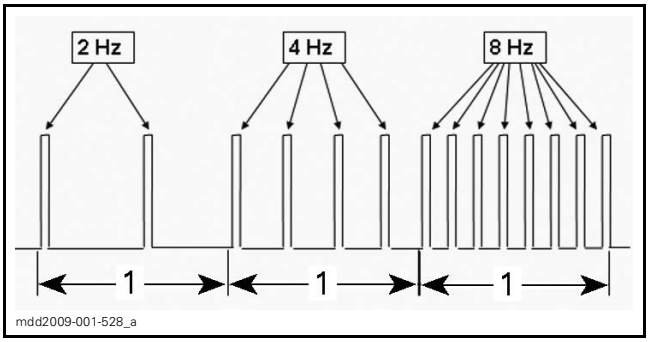
[3] 25% on time

[4] 50% on time.

Hertz (Hz)

The hertz (symbol: Hz) is a measure of frequency, informally defined as the number of events occurring per second. The pulses per second sent to an injector can be measured as hertz. When testing the signal to an E-TEC injector with BUDS, the multi-meter is set to the hertz scale.

[1] One second time period.



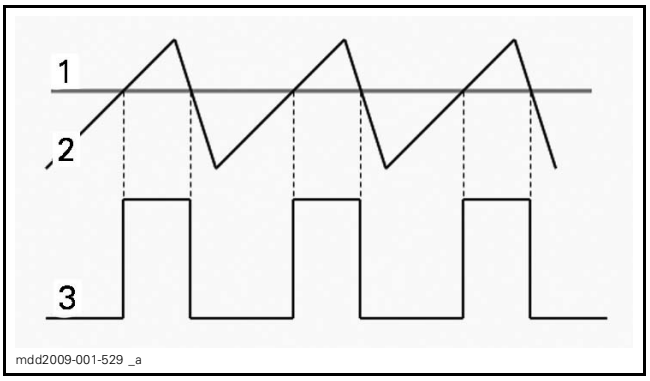
PWM (Voltage Regulation)

Pulse-width modulation can also be used for voltage regulation. One method uses circuitry that measures the input voltage that needs to be regulated. As the voltage is rising the circuitry shuts it off at the desired voltage and then the cycle repeats again and again. This switching on and off never lets the voltage climb to the actual input voltage. The result is a PWM signal at the desired lower voltage. This is how the 55 volts is reduced to 8 and 13.8 volts to operate the fuel pump.

[1] Reference line

[2] Incoming voltage

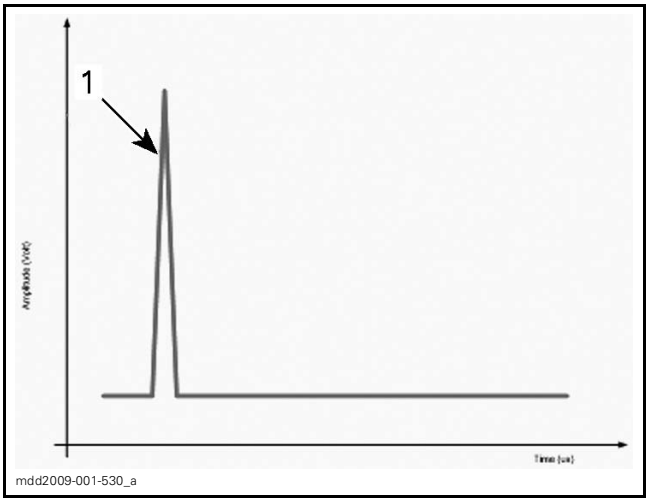
[3] Regulated output voltage.



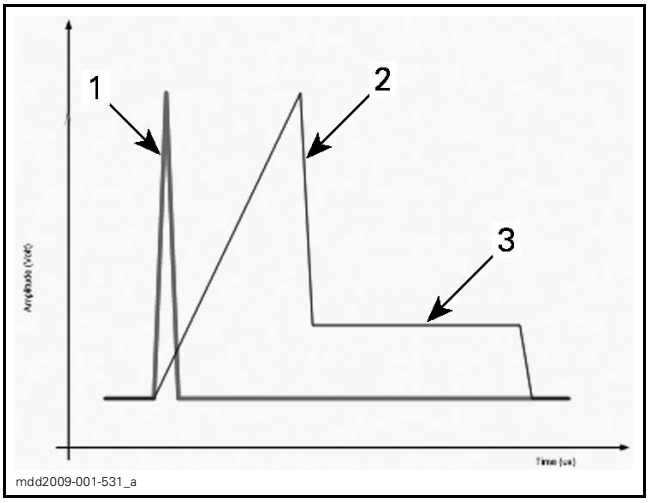
Ignition System

A totally new type of ignition system was developed specially for the E-TEC. A very fast rise time IDI ignition to drastically reduce plug fouling and provide good combustion stability.

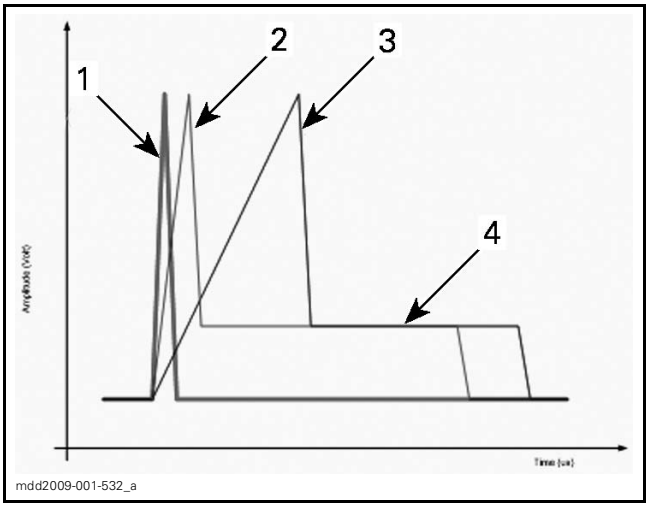
Traditional capacitive discharge ignition's or CDI **[1]** systems have very fast rise times, however the spark duration is very short. This is great at reducing spark plug fouling however it is not very good at igniting a very lean fuel air mixture such as the E-TEC has in the stratified charge mode.



A standard inductive ignition system **[2]** has a very long duration spark **[3]** that is great for igniting lean mixtures. However the rise time is very slow. This can produce spark plug fouling at idle.



The new E-TEC ignition **[4]** combines the benefits of a very fast rise time like capacitive discharge ignitions possess, with the longer duration spark that an inductive ignition system possess.



Ignition Coil

The E-TEC ignition coil is a 3 wire coil. Two wires are 55 volt positive and negative and the third wire is the trigger signal from the ECM.

[1] 55 volt positive

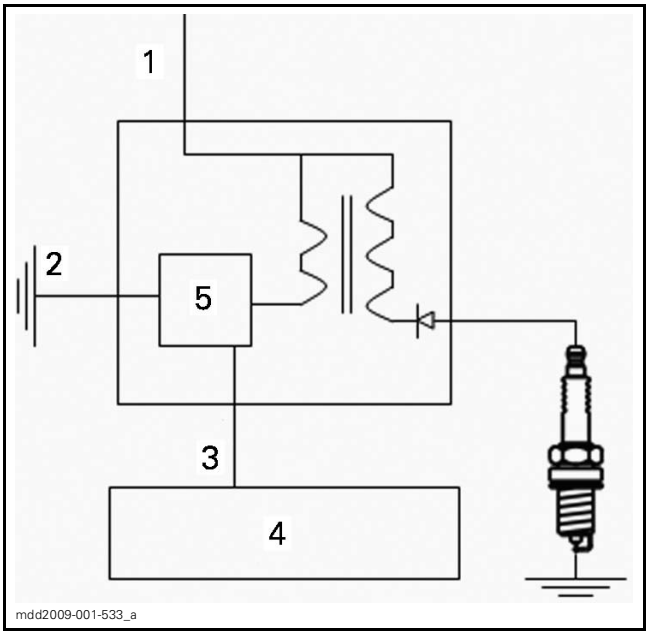
[2] Ground

[3] Trigger wire from ECM

[4] ECM

[5] Switching transistor

Spark plugs = PZFR6F – .8 mm gap (.031").



Spark Plug Indexing

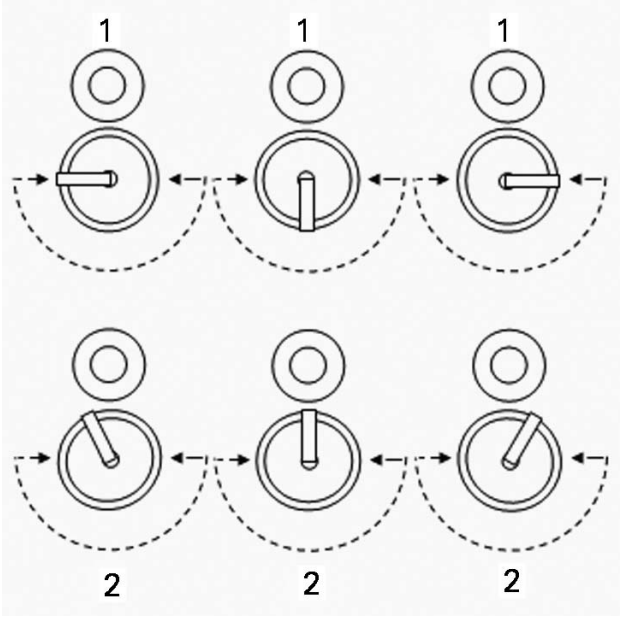
Proper orientation or "indexing" of the spark plug is critical for an E-TEC engine to perform properly. The opening of the electrode must be facing the injector spray pattern. This is extremely important due to the lean fuel and air ratio injected during the stratified charge mode.

The OEM BRP spark plug is pre-indexed in the proper position. If a non BRP plug is purchased the dealer or customer will have to properly "index" the spark plug via trial and error. Externally marking the spark plug shell to note the electrodes position will aid in the indexing of the plug.

[1] Acceptable spark plug electrode positions in relation to the injector nozzle

[2] Unacceptable spark plug electrode positions in relation to the injector nozzle

NOTE: If The spark plugs are not indexed there won't be a perfect idle. There will also be increased emissions and soot.



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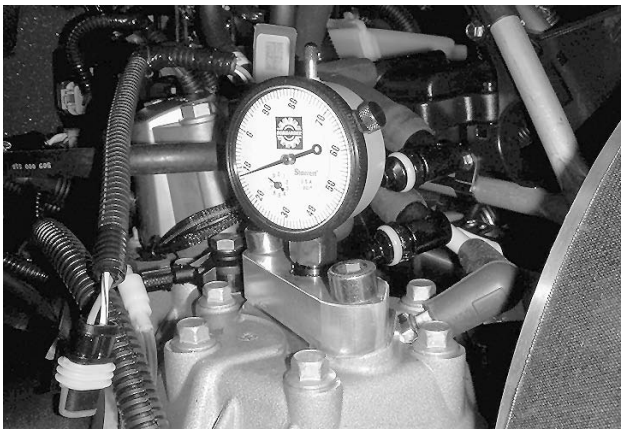
Based on the preceding text complete the following:

The new E-TEC ignition combines the benefits of a _____ _____ _____ _____ like capacitive discharge ignitions possess, with the _____ _____ _____ that an inductive ignition system possess.

If the spark plugs are not indexed there _____ be a _____ _____.

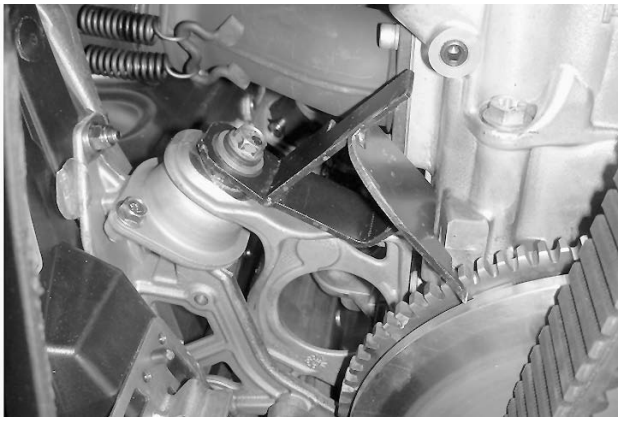
Ignition Timing

Ignition timing is accomplished by removing the PTO side injector and installing a special tool to mount the dial indicator. Mark the PTO flywheel as indicated in the *SHOP MANUAL*. It is timed from the PTO side.


mdd2009-001-535

Freeze the timing with BUDS on the settings screen – BUDS will fix the timing at what the ECM references as 28° BTDC based on trigger coil input. By changing the offset in BUDS it will change the point the ECM triggers the ignition. Change the offset until the timing marks on the PTO flywheel align.

NOTE: While the timing is frozen with BUDS the engine will only run on one cylinder (PTO side).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BUDS Communication

For BUDS communication either the MPI or MPI 2 will work. The T- Harness and a battery must be connected to supply power to the vehicle if it is not running. Disconnect the headlights. KW 2000 is the protocol. Two modules communicate with BUDS the cluster and the ECM. To program keys they are placed on the vehicle DESS post. Not the MPI or MPI 2 DESS post adapter.

NOTE: The auxiliary battery can be used for diagnosing accessories, simply click on accessories relay activation in the settings screen.

mdd2009-001-536

Refer to the *2009 600 HO E-TEC SHOP MANUAL* Section 03 Subsection 07 for more information and to assist in completing the exercises on the following subject.

Oiling System

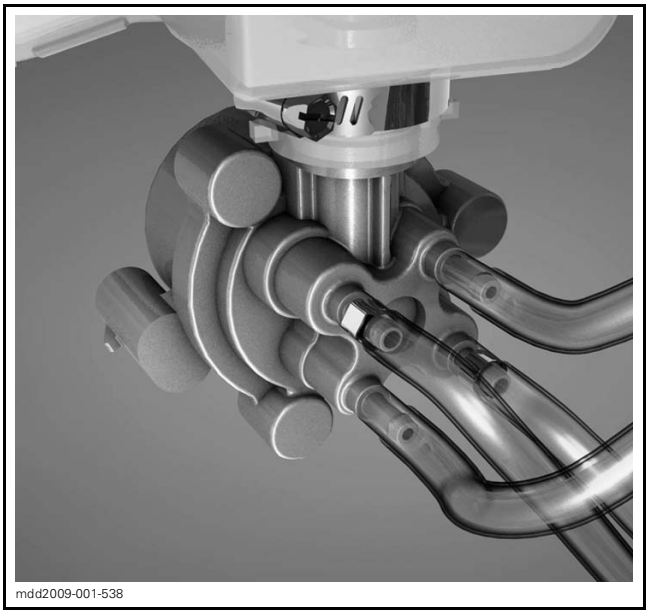
An electronic oil pump located on the bottom of the oil tank is activated by the ECM and can precisely deliver the exact amount of oil needed. The electronic pump's oil quantity can be calibrated according to the needs of the engine at each specific engine rpm. The electric pump is more accurate, has better tolerances than a mechanical pump and is easier on the thumb. In addition, if the unit is being driven at altitude it will automatically reduce the amount of oil injected to coincide with the reduction of the fuel. Its output is varied by throttle position, engine rpm, altitude and engine running time.

NOTE: A mechanical pump has about 50% output variance due to tolerance differences, mechanical adjustment, etceteras. In addition, its oil delivery increase follows throttle opening and always has linear delivery.


mdd2009-001-537

Oil Pump

The electronic oil pump is a positive displacement pump. The oil amount is determined by the frequency of pulses sent to the pump. The quantity if oil is the same with each pump pulse. The frequency of injection at idle is about 1 time per minute and at 8000 rpm about 3 times per second. The pump has four output orifices, two large diameter for injection into the crankcase via check-valves aimed at the connecting rods. The other two smaller orifices are used to inject oil onto the 3 D RAVE valves to reduce carbon buildup and gumming. 15% of the engine oil quantity is injected to the RAVE valves.


mdd2009-001-538

Oil Pump Operation

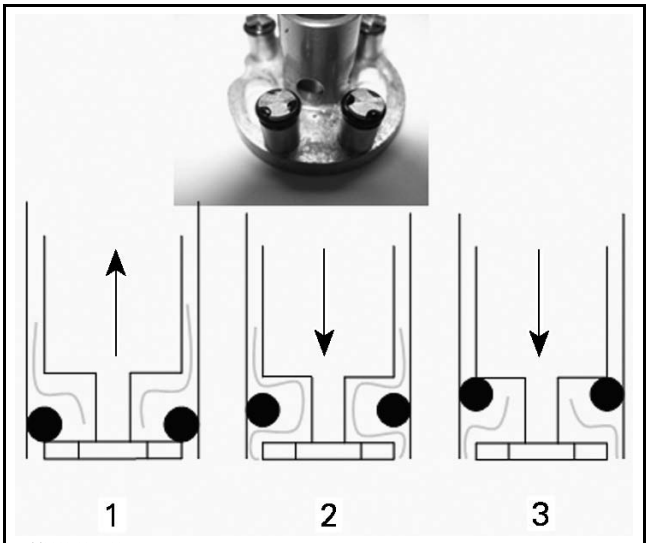
[1] Up-stroke

[2] Down-stroke no pumping.

[3]Down-stroke pumping.

In extremely cold weather the ECM electronically energizes the pump to "preheat" or "warm" the oil in the pump. This improves the accuracy and pumping efficiency of the system.

NOTE: The ECM knows how much oil is used. If low the oil light comes on, the pulses to the oil pump are counted and at critical low oil the warning beeper will sound and limit the rpm to 5500.



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Oil Pump Calibration Code

Every electronic oil pump is flow tested to within less that 2% variance. The pump is then assigned a code number. The number is located on a tag at the back of the pump.

mmr2009-023-093_a

The oil pump code number needs to be programmed into the ECM with BUDS on the settings screen. Any time the oil pump or ECM is replaced the code needs to be reset.

NOTE: Failure to program the correct oil pump compensation code can result in severe engine damage.

[1] Oil pump code number location.

mdd2009-001-540

Break-in Oiling

The total break-in time is 6 hours. The system delivers more oil to the engine during that time period. This helps to break-in a new engine. After the 6 hours it switches to the normal non break-in oiling map. If the engine was to be replaced, the break-in period can be restarted in BUDS on the settings screen. The countdown timer on the BUDS screen is in seconds of the time remaining.

NOTE: It is a good idea to let customers know not to check the oil consumption for the first 6 hours.

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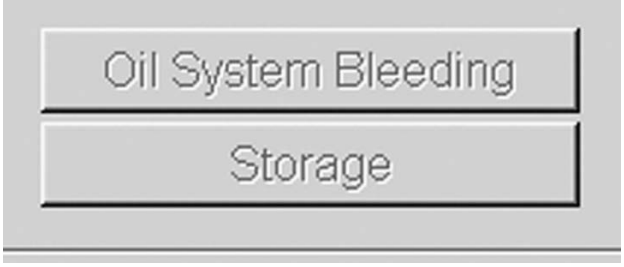
Oil system bleeding

If needed there is an oiling system priming function in BUDS located on the activation screen.



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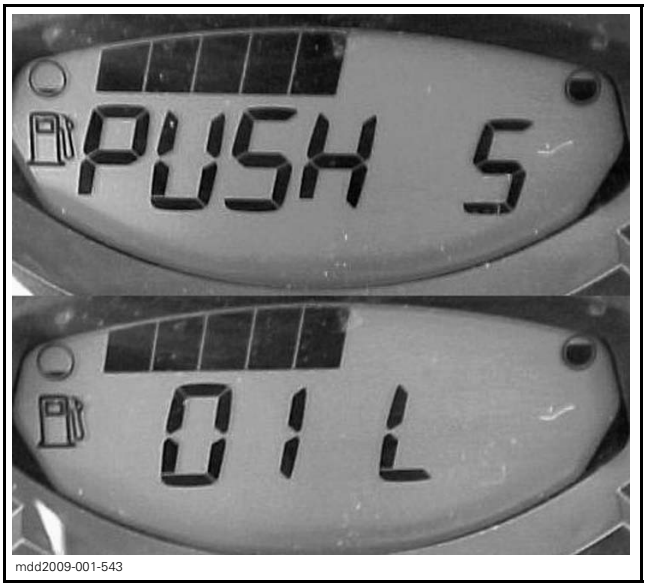

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Summarization

This electronic pump can also be used to "summarize" the engine by the customer or the dealer. This procedure adds a large volume of oil to the injector fittings to "fog" the engine while running.

To initiate the procedure, perform the following:

– Place the vehicle in a well ventilated area
– Start the engine and let it run until it reaches its operating temperature
– Using the SET (S) button, scroll the multifunction gauge to total mileage
– Repeatedly depress the HI/LOW beam switch rapidly, then, while doing this, press and hold the SET button until "PUSH S" displays
– When the gauge displays "PUSH S", release all buttons
– Again, press and hold the SET button for 2–3 seconds
– The gauge will display "OIL" when the engine enters the storage procedure (summarization feature)
– Do not touch anything during the engine lubrication cycle
– The engine will increase its rpm to approx 1600, then the oil pump will "oil flood" the engine for 30-60 seconds
– When completed, the engine will stop by itself
– Remove the DESS key.

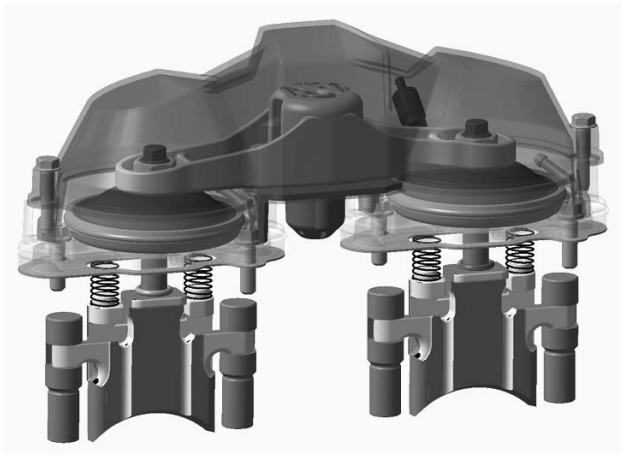
NOTE: Add fuel stabilizer to the fuel tank before beginning this procedure.

3D RAVE

The RAVE (Rotax Adjustable Variable Exhaust) valves change the height of the exhaust port to enhance the engine power band and torque at all engine rpm. In addition they provide better combustion stability, reduced fuel consumption, improved low rpm efficiency and torque. The electronically controlled 3-D RAVE system with side exhaust port control is utilized. The 3 step valves are controlled by the ECM through mapping (TPS, rpm vs. solenoid state).

The 3 positions of the RAVE valve are as follows:

– Closed
– Mid-position (partially opened)
– Fully open.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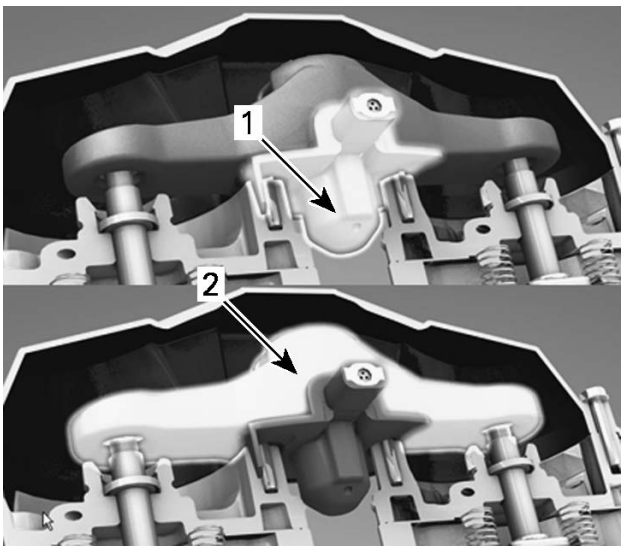
RPS (Rave Position Sensor)

Attached to the top of the RAVE valves is the RPS (Rave Position Sensor). The RPS is an electronic variable Hall effect sensor. The purpose of this sensor is to tell the ECM the exact position of the RAVE valves. Armed with this extra data the ECM can modify the fuel and ignition timing mapping according to the three positions of the RAVE valves. This reduces emissions, increases fuel economy, and improves throttle response considerably.

The whole assembly is called the RPS.

[1] Variable Hall effect sensor

[2] Rave link (contains magnet).



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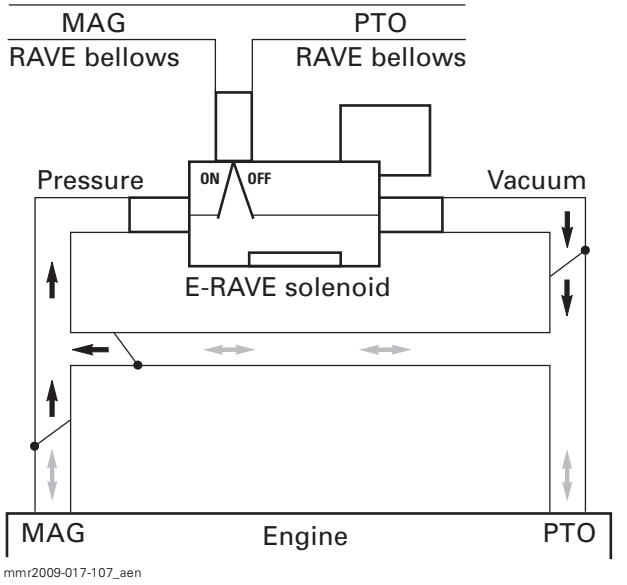
RAVE Solenoid

A solenoid controlled by the ECM is used' to position the RAVE valves. Crankcase pulses (pressure and vacuum) connected to the solenoid through a series of hoses and check valves are used to either open or close the RAVE valves. For the mid-position the signal to the solenoid is PWM (Pulse Width Modulated) to provide a balance of pressure and vacuum to hold the valves in the mid position.

Solenoid Off = vacuum = closed position.

Solenoid On = pressure = open position.

Solenoid PWM @ 20Hz and keeps changing duty cycle until RPS reads mid-position.



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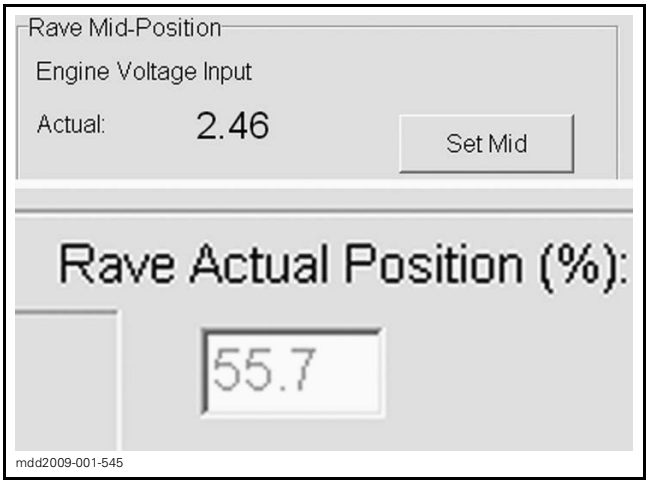
Resetting the RPS

The RPS needs to be reset if the sensor is replaced or if the ECM is replaced. Perform the RAVE Mid-position reset with BUDS on the settings screen. The position of the RAVE valves can be seen on a 0 to 5 volt scale. Ensure that the RAVE' valves are in the mid-position before clicking on "Set Mid" as the vacuum will hold them down for quite a while after the engine is shut down. Remove the PTO side pressure hose to ensure the RAVE valves move to the mid-position. The voltage should be around 2.5 volts.



Setting screen shows voltage Monitoring page shows percent.

– Open position around 4.8 volts
– Mid-position 2.2 to 2.6 volts
– Closed position around .71 volts.

Based on the preceding text complete the following:

Information from the RPS allows the ECM to modify the _____ and _____ _____ mapping.

What state is the solenoid in to put the RAVE valves in the open position?

☐ ON

☐ OFF

☐ PWM.

The RAVE valves are in the fully open position when the voltage reading is around _____ volts.

General Specifications

Displacement: 593 cc

Bore and stroke: 72mm X 73mm

Cooling: liquid power: same as SDI

Idle rpm 1100

Rev limits @ 8600

Max Hp rpm 8100

XPS synthetic blend 2-stroke oil.

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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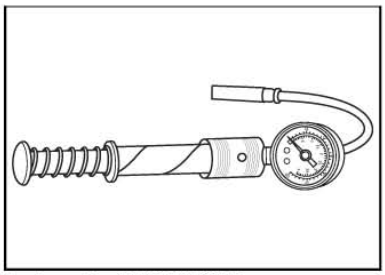
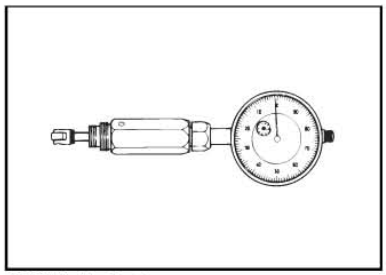
Engine

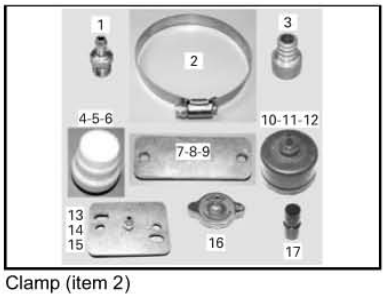


Leakage Tool MIKUNI BN Pump
P/N 295 000 114 Recommended
All carbureted engines
To leak test carburetor pop-off pressure.

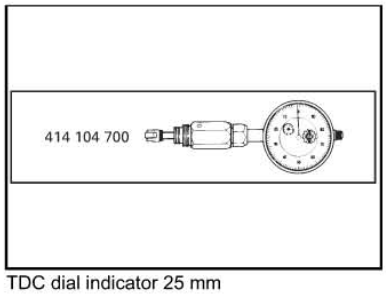


TDC Dial Indicator
P/N 295 000 143 Recommended
2-stroke engines except DI

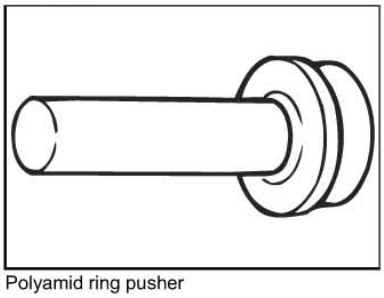
Fitting (item 1)
P/N 408 201 100 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



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

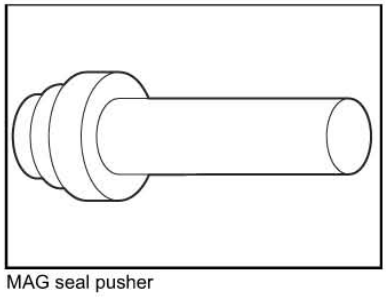


TDC dial indicator 25 mm
P/N 414 104 700 Recommended
For ignition timing static measurement

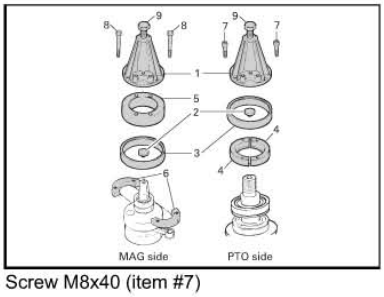


Polyamid ring pusher
P/N 420 267 930 Recommended
247 engine

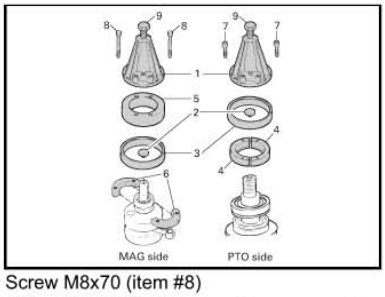
HALF RING PULLER MAG
P/N 420 276 025 Recommended
717 engine
To remove crankshaft bearings.



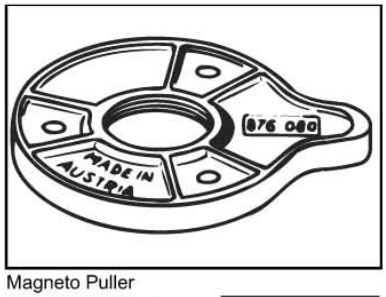
MAG seal pusher
P/N 420 277 875 Recommended
277f



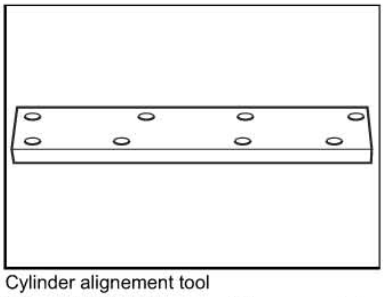
Screw M8x40 (item #7)
P/N 420 840 681 Recommended
All 2-stroke engines



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



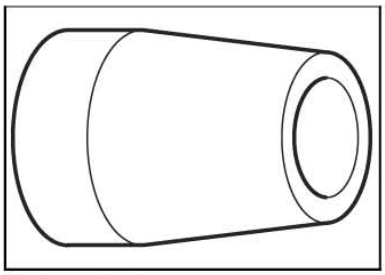
Magneto Puller
P/N 420 876 081 Mandatory
All 2 strokes



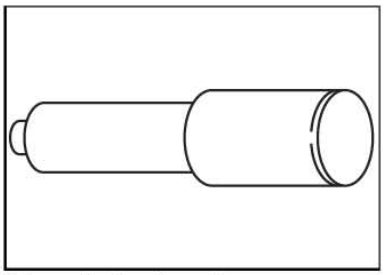
Cylinder alignement tool
P/N 420 876 171 Recommended
377f, 440f
To use on exhaust side

Engine

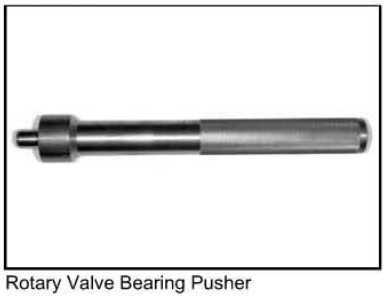
Half ring puller
P/N 420 876 330 Recommended
947 & 947 DI engines
To remove 52 mm O.D. bearings from the crankshaft.



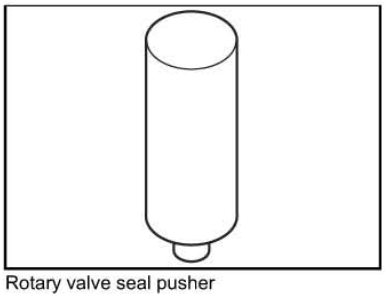
Seal protector sleeve
P/N 420 876 490 Recommended
Rotary valve engine with 12 mm shaft



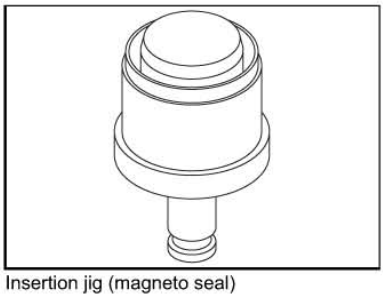
Rotary valve bearing pusher
P/N 420 876 500 Recommended
Rotary valve engines



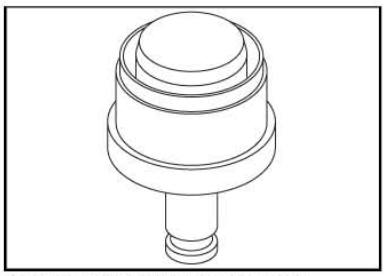
Rotary Valve Bearing Pusher
P/N 420 876 501 Recommended
717, 787 & 787 RFI engines



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

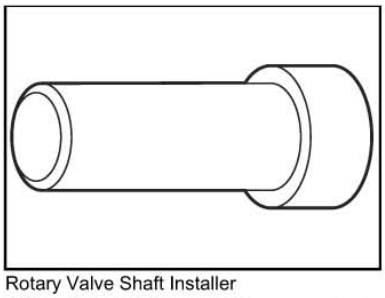


Gasket pusher (magneto side seal)
P/N 420 876 516 Recommended
599, 699, 779, 809

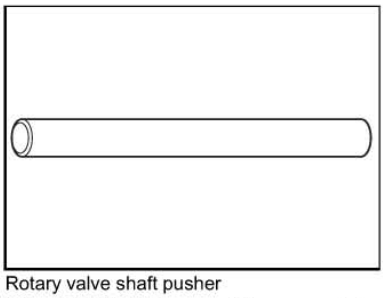
Crankshaft Protector
P/N 420 876 552 Recommended
All 2 stroke, except 247 (PTO)
Use with 420877635

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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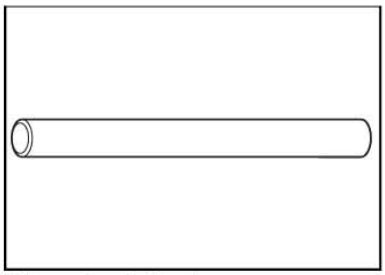
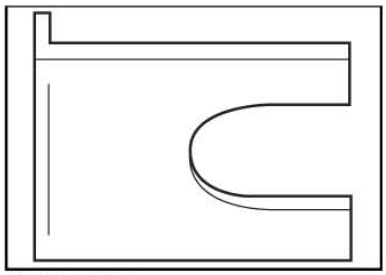
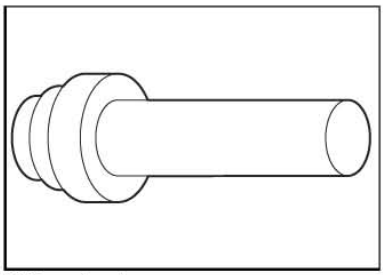
Engine



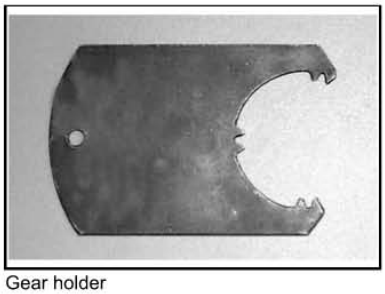
Rotary valve shaft pusher
P/N 420 876 612 Recommended
engine with rotary shaft 10 mm



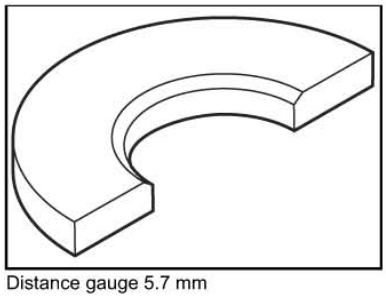
Crankshaft feeler gauge
P/N 420 876 620 Recommended
377, 443, 447 & 503



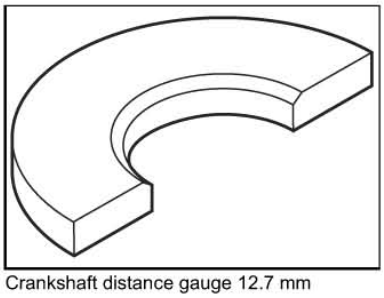
PTO seal pusher
P/N 420 876 660 Recommended
277



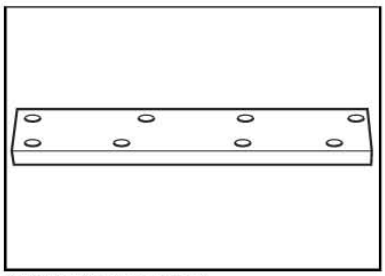
Gear holder
P/N 420 876 695 Recommended
277F, 377F, 447 & 503
To hold the oil pump gear



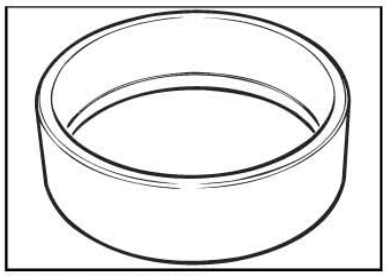
Distance gauge 5.7 mm
P/N 420 876 822 Recommended
377, 443 & 447



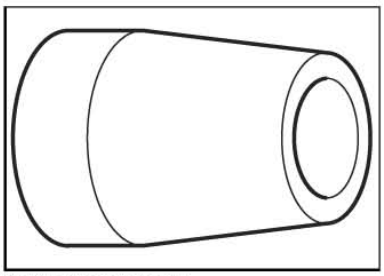
Crankshaft distance gauge 12.7 mm
P/N 420 876 824 Recommended
503F



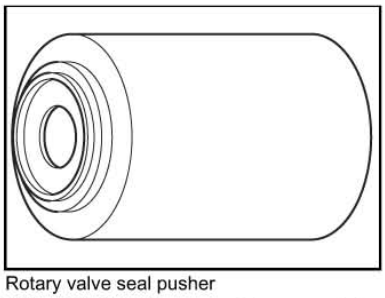
Cylinder Alignment Tool
P/N 420 876 904 Recommended
717 engines



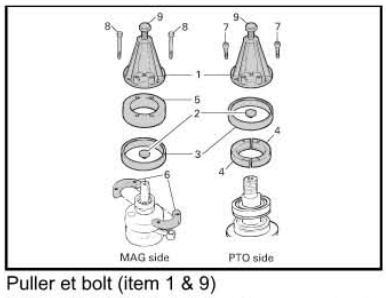
Magneto centering tool
P/N 420 876 922 Recommended
717 engines
All engines with Nippondenso 160 W CDI.



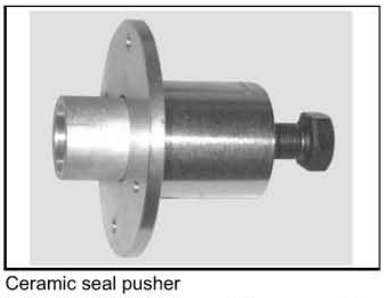
Seal protector sleeve
P/N 420 876 980 Recommended
Rotary valve engines with 10 mm shaft



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

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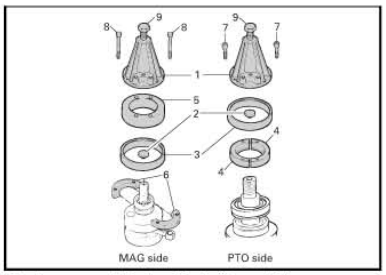
Engine



Replacement Puller Bolt (item #9)

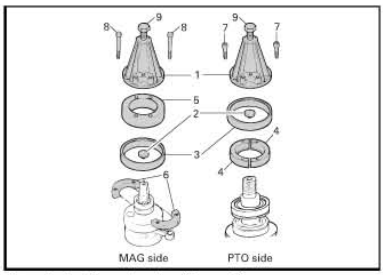
P/N 420 940 755 Recommended

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)

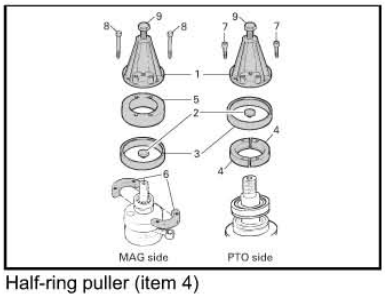
P/N 420 976 890 Recommended

247 engine

HALF RING PULLER

P/N 420 977 475 Recommended

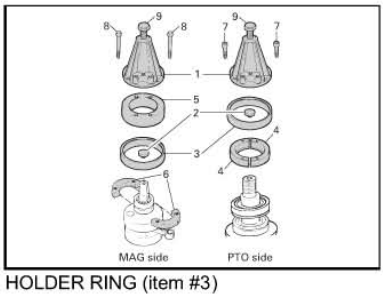
717 / 787 RFI engines



Half-ring puller (item 4)

P/N 420 977 479 Recommended

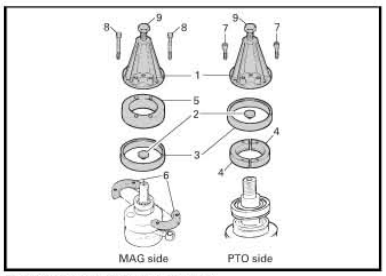
599, 699, 779, 809
3 cylinders crankshaft bearing remover; to use with 420877635



HOLDER RING (item #3)

P/N 420 977 480 Recommended

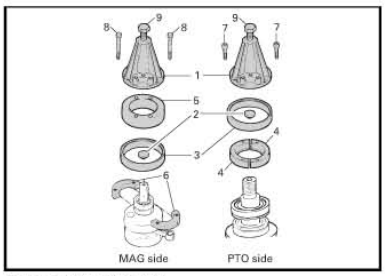
947DI engines



RING PULLER (item #3)

P/N 420 977 490 Recommended

717/787RFI engines



Ring Puller (item 3)

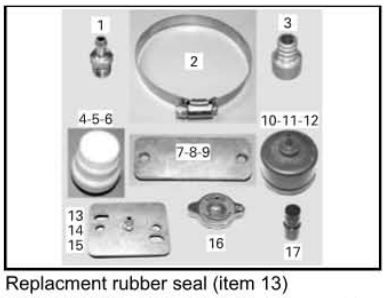
P/N 420 977 494 Recommended

599, 699, 779, 809
Crankshaft bearing installer

Adapter (item 3)

P/N 517 234 900 Recommended

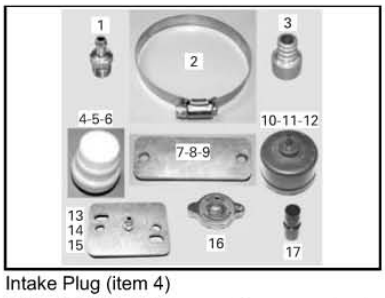
All 2 stroke engines
Replacement part for item included in kit 861749100



Replacment rubber seal (item 13)

P/N 529 010 902 Recommended

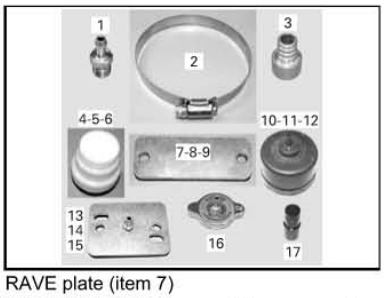
For kit 529010900



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)

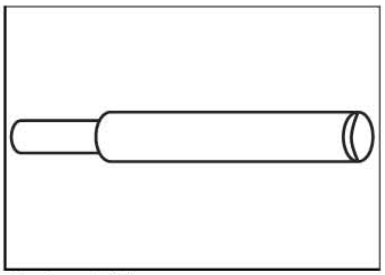
P/N 529 011 203 Recommended

All 2 stroke engines
Replacment part for intem included in kit 861749100

Circlip installer

P/N 529 016 900 Recommended

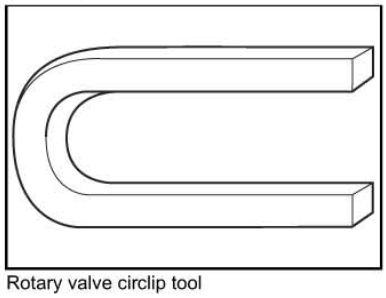
Replaced by 529035562



Aligning pin (4)

P/N 529 018 900 Recommended

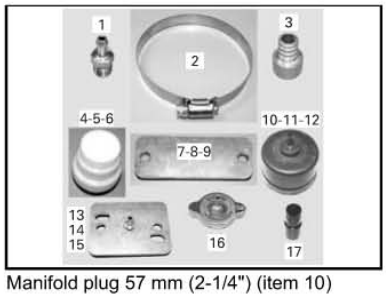
CK3 1999: 467, 494 & 582



Rotary valve circlip tool

P/N 529 020 800 Recommended

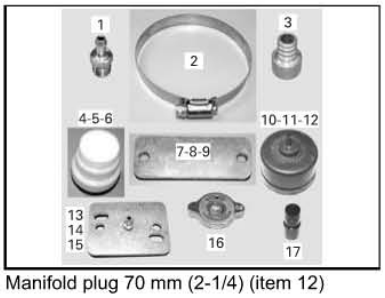
1993 and earlier rotary valve engines



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)

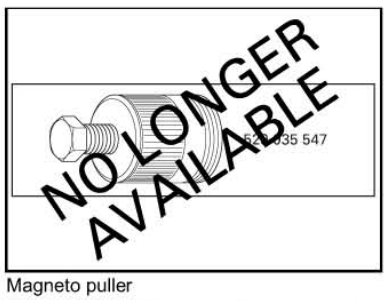
P/N 529 021 302 Recommended

Replacement part for kit 861749100

Vacuum pressure pump

P/N 529 021 800 Recommended

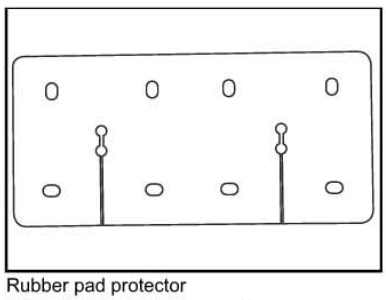
All models



Magneto puller

P/N 529 022 500 Recommended

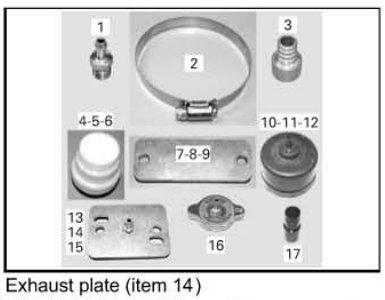
Replaced by 529035547



Rubber pad protector

P/N 529 023 400 Recommended

1999 CK3 & S200 cageless bearing engines

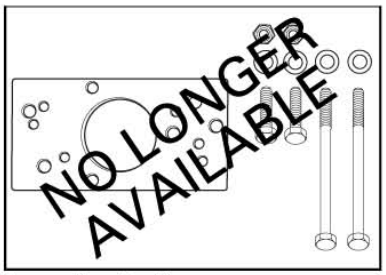


Exhaust plate (item 14)

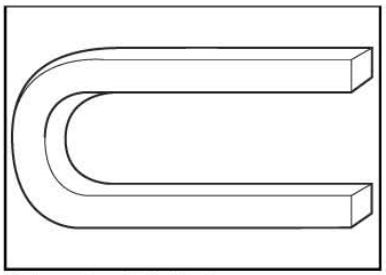
P/N 529 024 600 Recommended

All 2 stroke engines
Replacement part for item included in kit 861749100

Engine



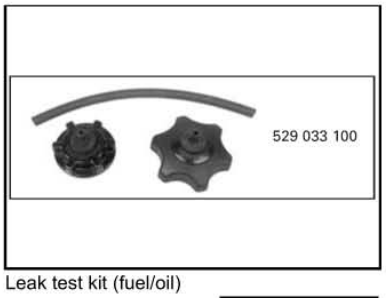
Base puller plate kit
P/N 529 024 900 Recommended
277



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

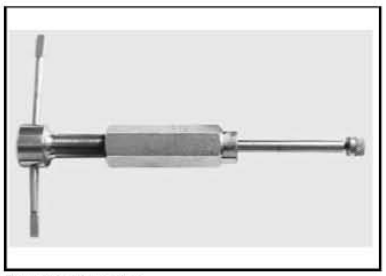
Intake plug (item 5)
P/N 529 030 500 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

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



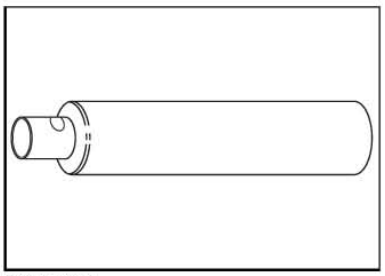
Leak test kit (fuel/oil)
P/N 529 033 100 Mandatory
All models

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

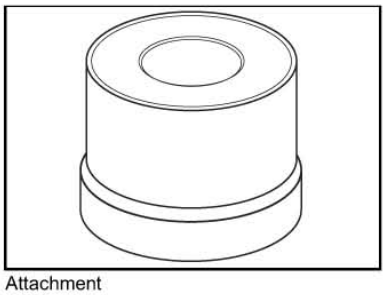


Piston pin puller
P/N 529 035 503 Mandatory
All 2-stroke engines

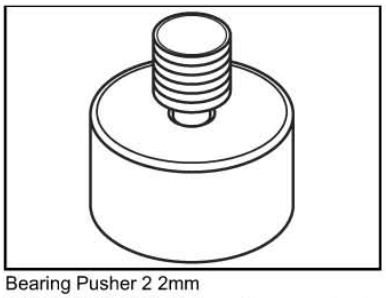
Replacement Protector Sleeve
P/N 529 035 513 Recommended
To be used with P/N 529 035 503.



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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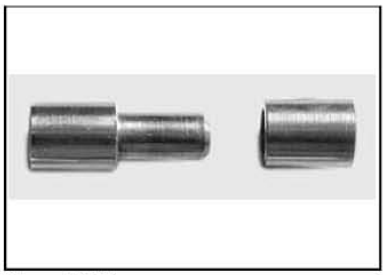
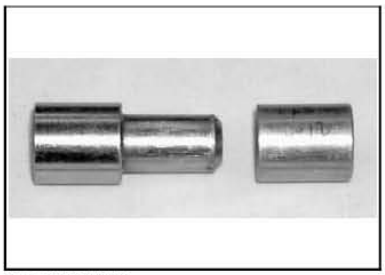
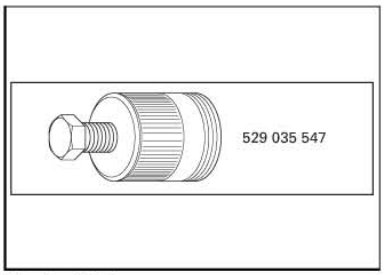
Engine



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

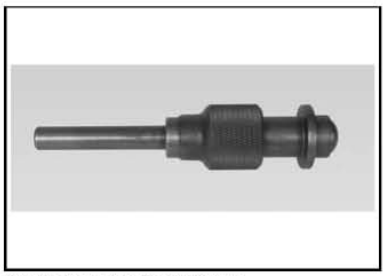


Flywheel Puller
P/N 529 035 547 Mandatory
Replacement bolt 529035549. Use 20876081/295000125/420841591/290847220

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



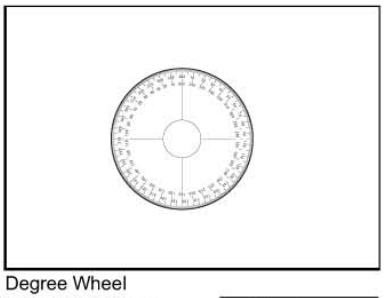
Circlip insertion Tool 20 mm
P/N 529 035 562 Recommended
593, 670, 693, 717, 787 & 787 RFI engine
Sleeve without groove P/N 529 035 567 also available.

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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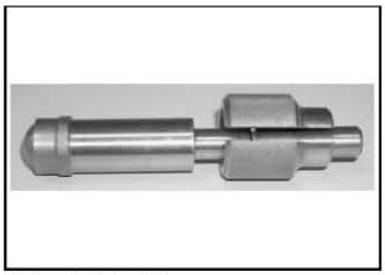
Engine

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

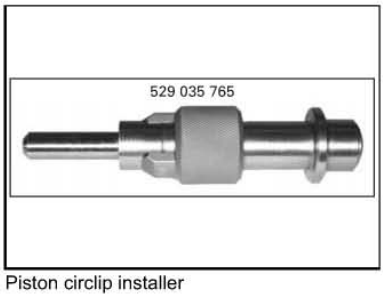


Piston circlip installer
P/N 529 035 686 Mandatory
All engine with tab type circlip

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

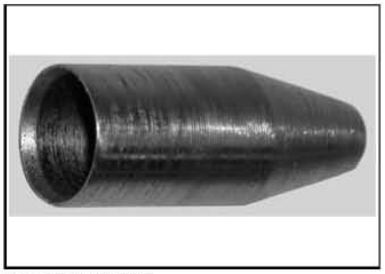
Valve spring compressor cup
P/N 529 035 764 Recommended
V-1000/ V-1300/330/400/490/660/810
To be used with valve spring compressor 519 035 724.



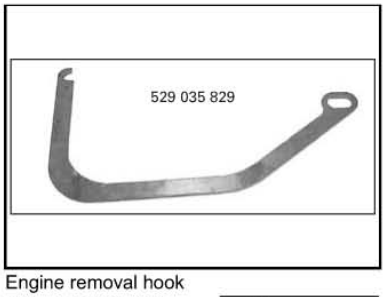
Piston circlip installer
P/N 529 035 765 Recommended
610/500/1503/V-1000 engines

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

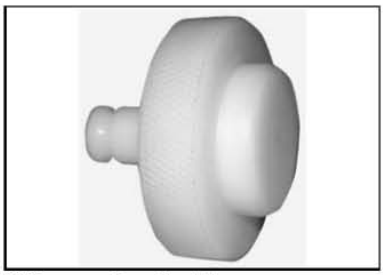
Engine lifting ring
P/N 529 035 830 Mandatory
2-stroke engines with 14 mm spark plugs

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

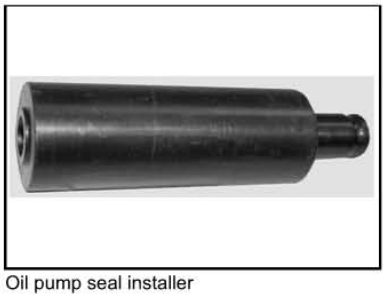
Engine

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

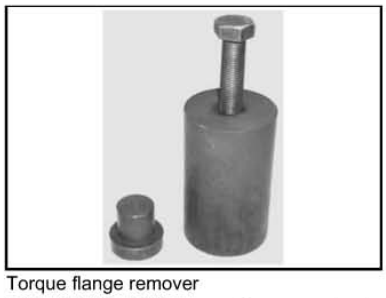
Pusher 32/42 mm
P/N 529 035 914 Recommended
V1000, V1300

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

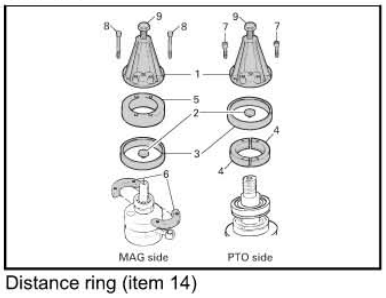
4-tooth socket
P/N 529 035 960 Recommended
Elite

Engine

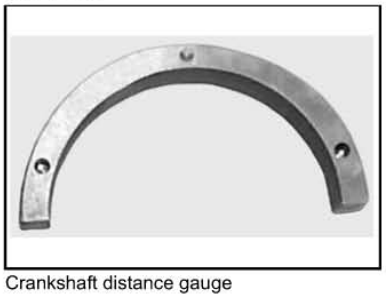
Manifold plug 63 mm (2-1/2") (item 11)
P/N 529 035 961 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

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

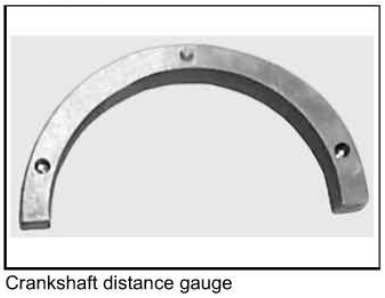
Intake Plug (item 6)
P/N 529 035 963 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100



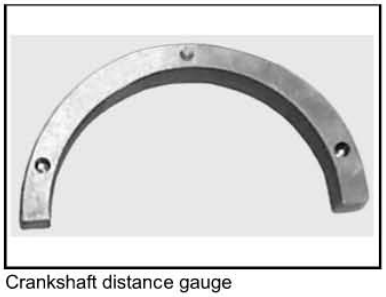
Distance ring (item 14)
P/N 529 035 964 Recommended
693, 793
To be used with 420877635, for MAG side bearing



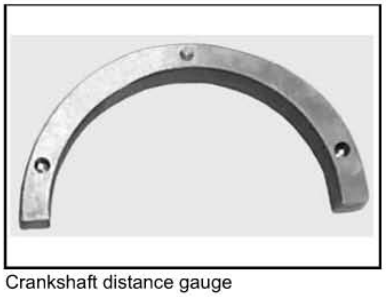
Crankshaft distance gauge
P/N 529 035 965 Recommended
552
To be used with 529035876



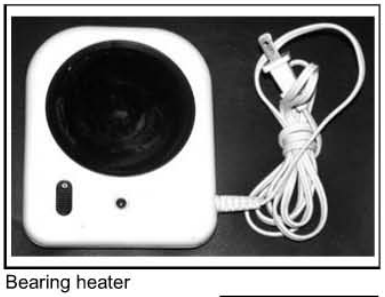
Crankshaft distance gauge
P/N 529 035 966 Recommended
493 & 593
To be used with item 529035976



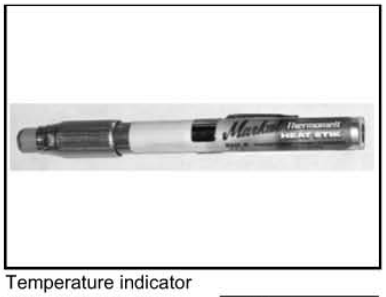
Crankshaft distance gauge
P/N 529 035 967 Recommended
593HO, 593 SDI, 693 & 793
To be used with 529035976



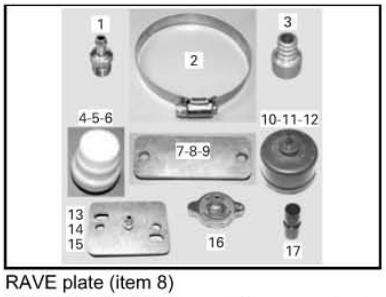
Crankshaft distance gauge
P/N 529 035 968 Recommended
793 HO & 793 HO SDI
To be used with 529035976



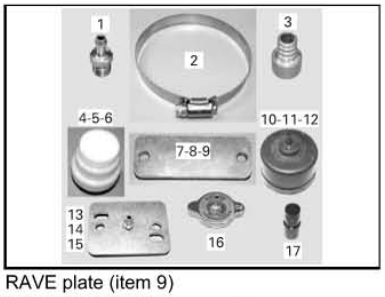
Bearing heater
P/N 529 035 969 Mandatory
All



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

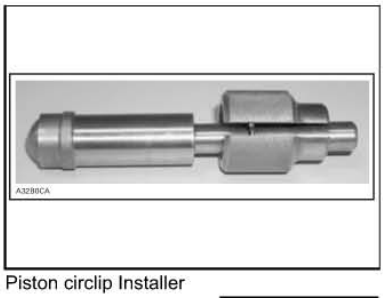
Resonator plug (item 17)
P/N 529 035 973 Recommended
All 2 stroke engines
Replacement part for item included in kit 861749100

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

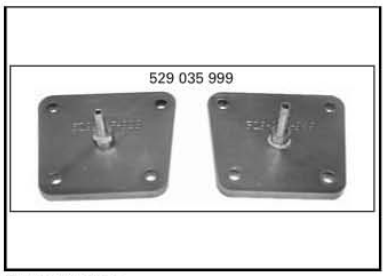
Crankshaft MAG bearing installer
P/N 529 035 979 Recommended
493, 593 engines

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

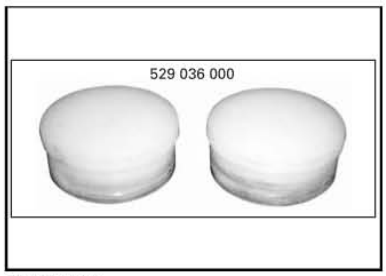
PTO bearing installer tool
P/N 529 035 990 Recommended
552, 593HO, 693, 793 engines



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

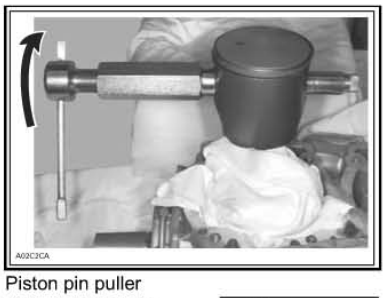


Exhaust plate
P/N 529 035 999 Recommended
995 SDI
For leak test.

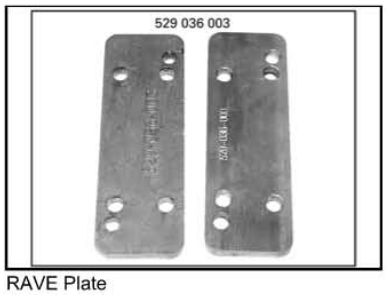


Plug Intake
P/N 529 036 000 Recommended
995 SDI
For leak test.

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.

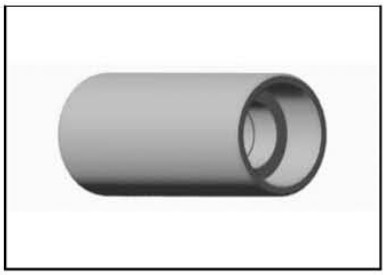
Crank shaft bearing puller
P/N 529 036 004 Recommended
2 strokes Engine

Engine

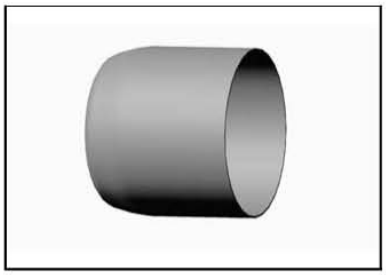
Crank protector
P/N 529 036 011 **Mandatory**
995 SDI

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

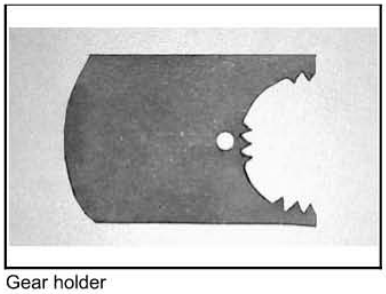
Crankcase support MAG/PTO
P/N 529 036 031 Recommended
V-490, V-660 & V-810 engines

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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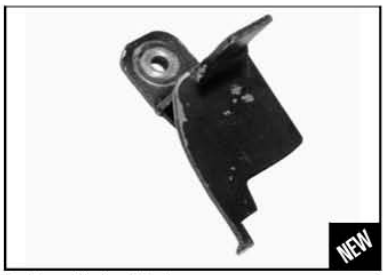
Engine

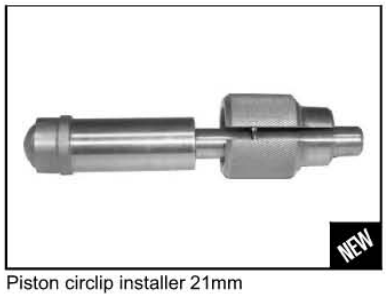


Ignition Timing Tool
P/N 529 036 129 Recommended
REV-XP

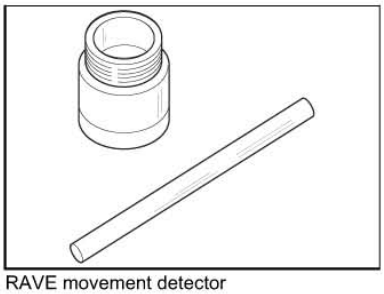
Ceramic seal pusher plate
P/N 529 036 130 Recommended
V-490, V-660 & V-810 engines
Use with ceramic seal installer 529035766

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



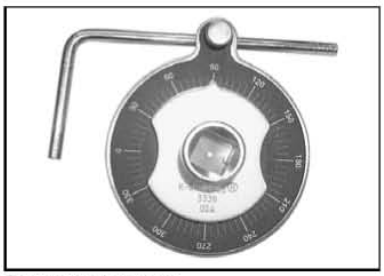
Piston circlip installer 21mm
P/N 529 036 138 Recommended
797



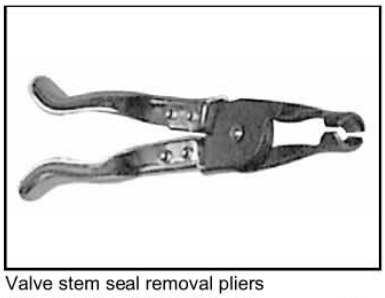
RAVE movement detector
P/N 861 725 800 Recommended
All RAVE equipped, except 797

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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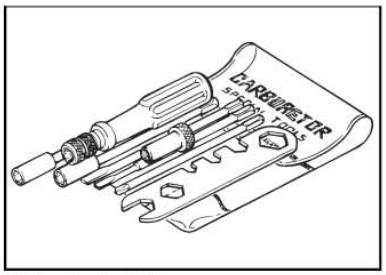
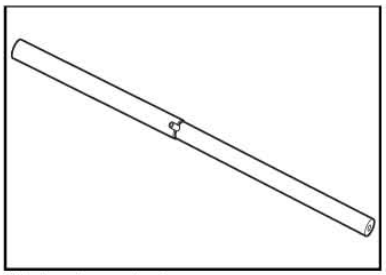
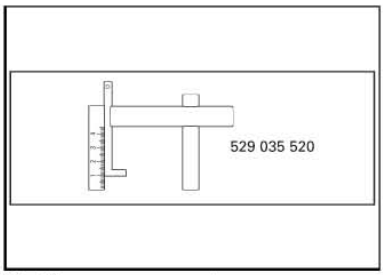
Fuel



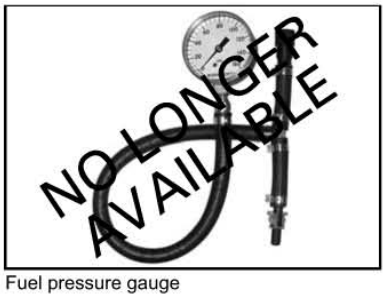
Carburetor tool kit
P/N 404 112 000 Recommended



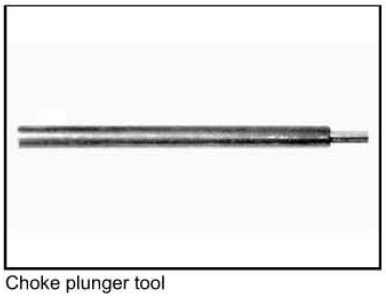
Choke plunger tool
P/N 529 032 100 Recommended
All equipped with choke, except ZX



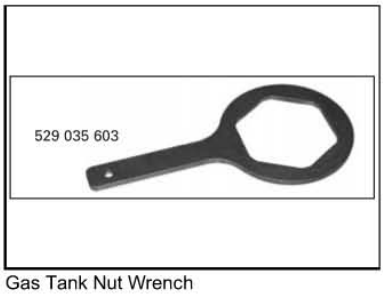
Float lever measurement
P/N 529 035 520 Recommended
Carburetor-equipped vehicles



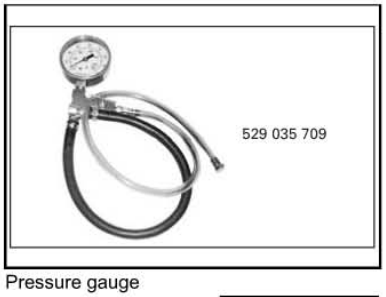
Fuel pressure gauge
P/N 529 035 591 Recommended
787 RFI, 793 SDI & 4-TEC engines
Replaced by 529 035 709. Spare plastic clip P/N 275500429



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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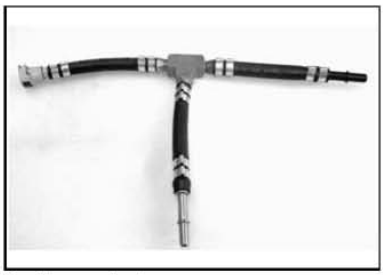
Fuel

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

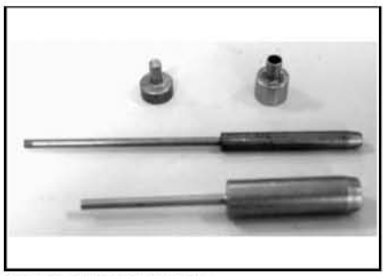


Fuel hose adapter
P/N 529 036 023 Mandatory
Injection type vehicles
To be used with 529 035 709.
Replacement clip 513 033 135

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

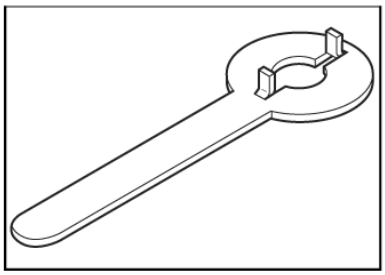
Extractor adaptor
P/N 529 036 136 Recommended
E-TEC, V-twin

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

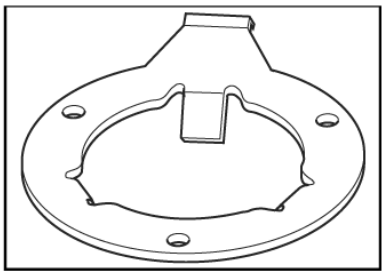


Needle jet height tool kit
P/N 590 122 400 Recommended
TM-40 carburator, 2002 & 2003

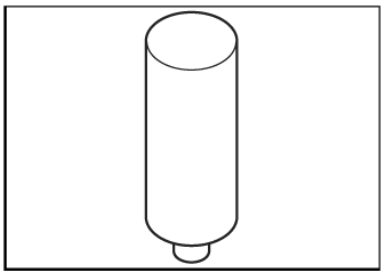
Cooling



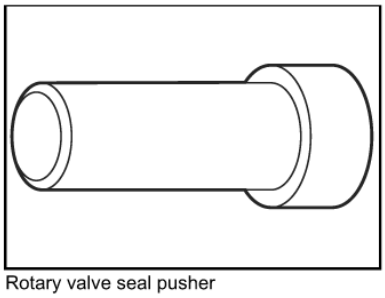
Coolant oil pump gear holder
P/N 420 277 905 Recommended
717, 583, 670, 599, 699, 779, 809 engine



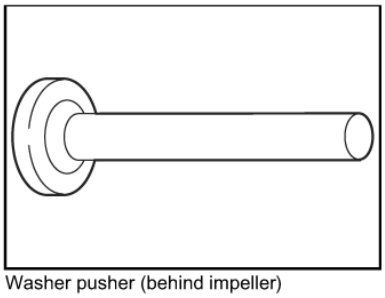
Fan Holder
P/N 420 876 357 Mandatory
All axial fan engines
exept 552F



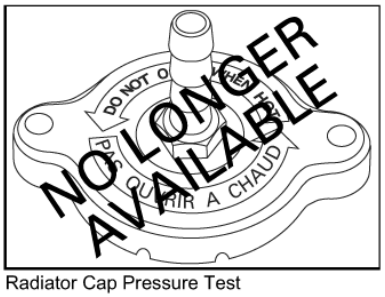
Gasket pusher
P/N 420 876 512 Recommended
500 LC, 670, 583
Rotary valve, 10 mm impeller shaft



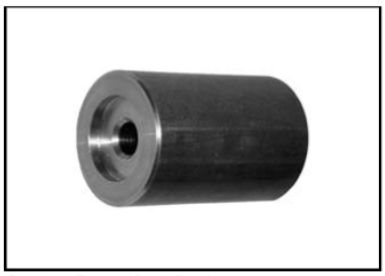
Rotary valve seal pusher
P/N 420 876 607 Recommended
500lc, 583, 670



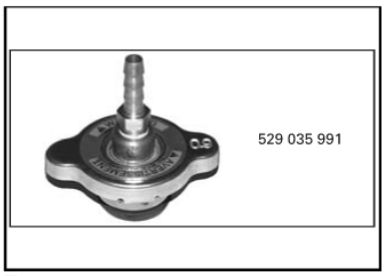
Washer pusher (behind impeller)
P/N 529 020 700 Recommended
Rotary valve engines



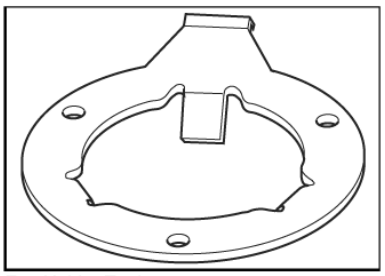
Radiator Cap Pressure Test
P/N 529 021 400 Recommended
4-TEC models
Replacement part for item also included in kit 861749100



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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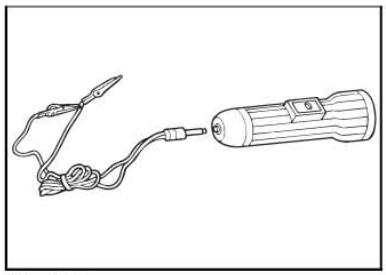
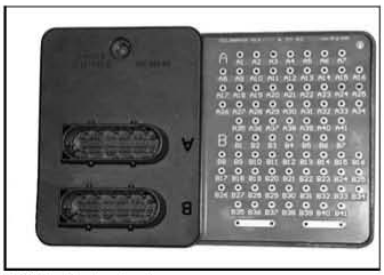
Electrical

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

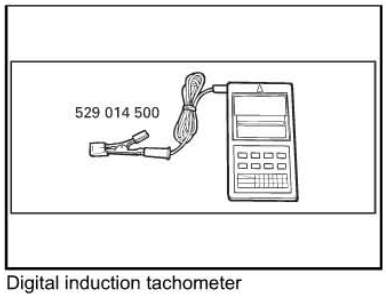


Circuit tester
P/N 414 012 200 Recommended
All



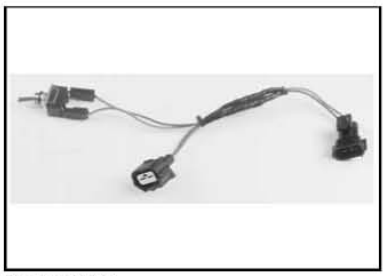
ECM adapter tool
P/N 420 277 010 Recommended
All models
All injected 2-TEC & 4-TEC with VDO ECM

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

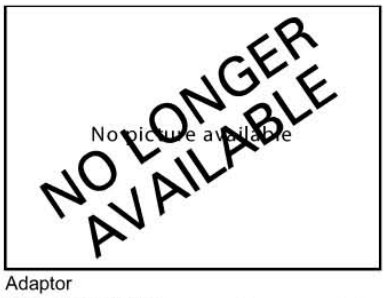
Stroboscopic Timing Light
P/N 529 031 900 Recommended
All 2-stroke



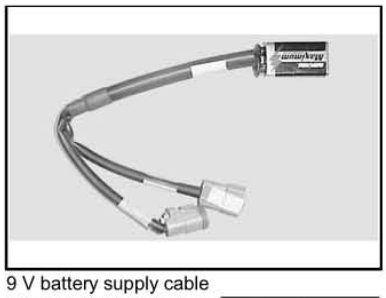
Bypass Wire
P/N 529 033 300 Recommended
CK3 with magneto 360W

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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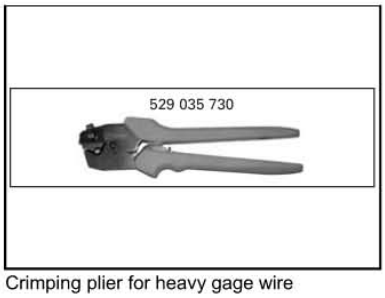
Electrical

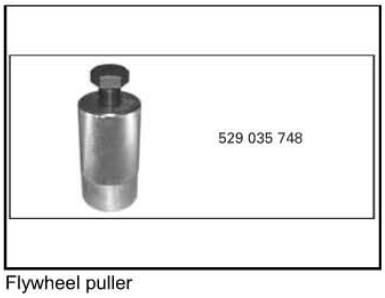
Diagnostic adaptor for VCK
P/N 529 035 679 Recommended
To be used with the MPI, connects to 529 035 807.

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.



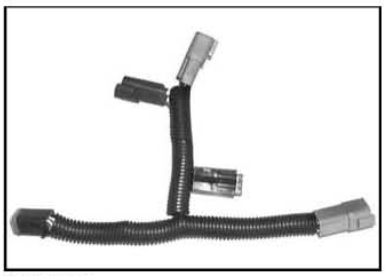
Crimping plier for heavy gage wire
P/N 529 035 730 Recommended
All models
Ex.: To crimp battery cable terminals.



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

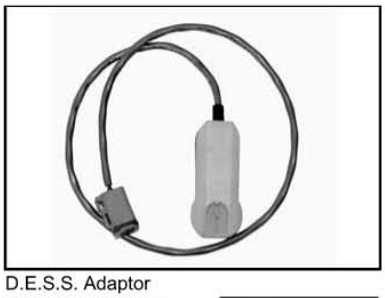
Fluke 115 digital multimeter
P/N 529 035 868 Recommended
All models



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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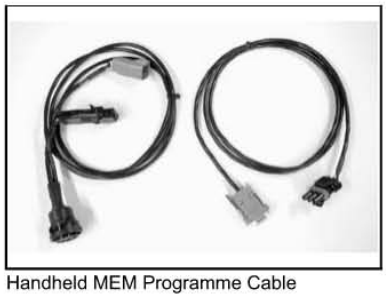
Electrical

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.

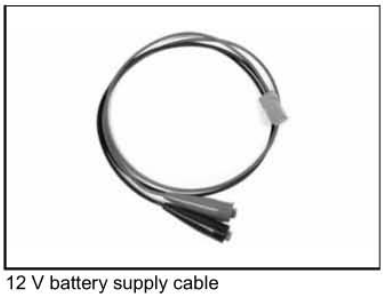
Crimping tool
P/N 529 035 909 Recommended
To use with compatible die to crimp different connectors

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

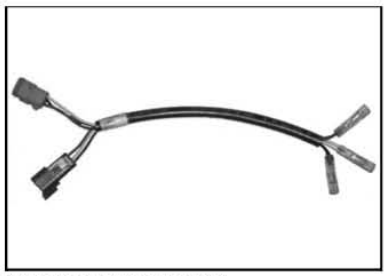
MPI communication kit
P/N 529 035 981 Recommended
Spare cables are still available. See MPI-2



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

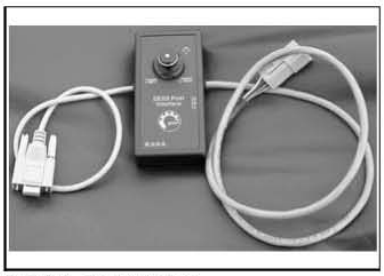


12 V battery supply cable
P/N 529 035 997 Recommended
Used with 529035869

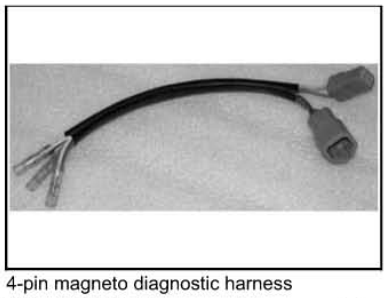


Magneto harness adapter
P/N 529 036 016 Recommended
1503, 449
To test the magneto.

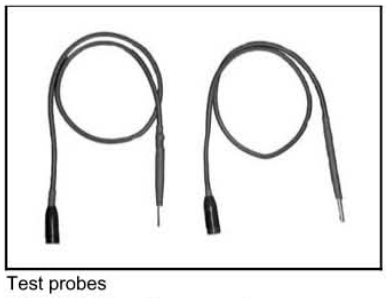
MPI-2 interface card
P/N 529 036 018 Mandatory
Replaces the MPI.



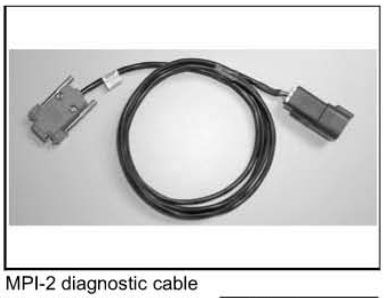
D.E.S.S. Post Interface
P/N 529 036 019 Mandatory
To programm D.E.S.S. keys with the MPI-2.



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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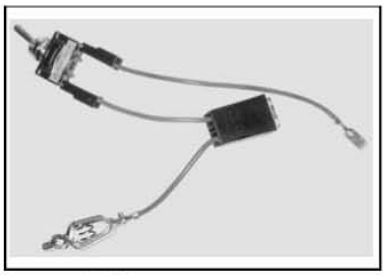
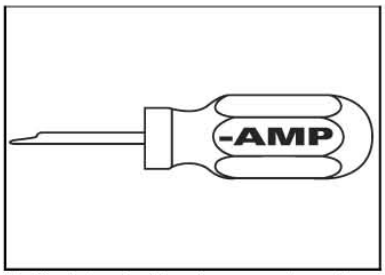
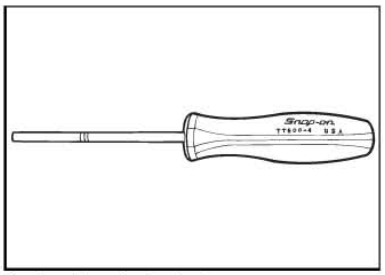
Electrical



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

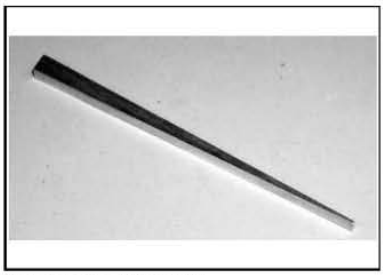


Packard terminal extractor
P/N Snap-on TT600-4 Recommended
Not solb by BRP

Lubrication

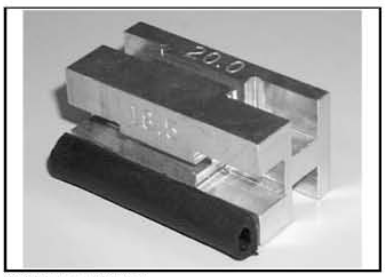
Adapter Hose
P/N 529 035 652 Recommended
4-TEC engines
Used with 529 035 709.

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

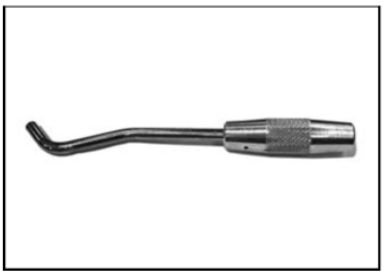
Oil pump adj. procedure card
P/N 529 036 043 Recommended
Replacement part for 861205900



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

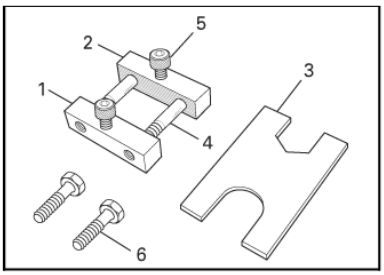
Lubrication



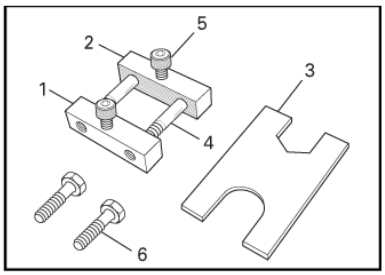
Oil filter cover puller
P/N 529 036 108 Recommended
1503
Used with 529 036 038.

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

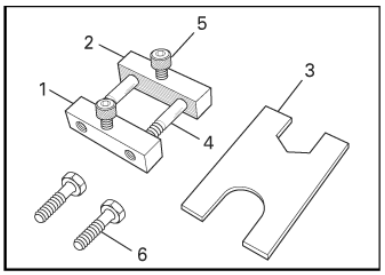
Propulsion / Transmission



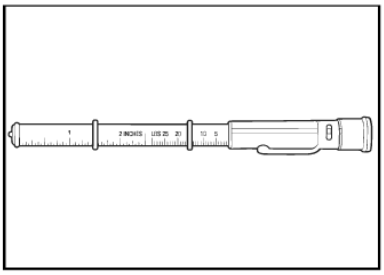
Bolt M10 (item 4)
P/N 222 007 565 Recommended
All except Élan
Part of kit 861725700



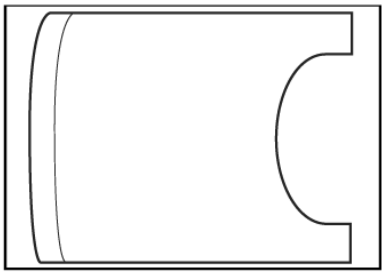
Screw M8 (item 6)
P/N 222 082 565 Recommended
All except Élan
Part of kit 861725700



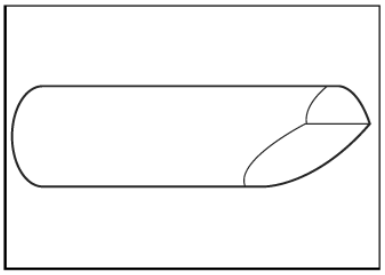
Allen screw (item 5)
P/N 222 983 065 Recommended
All except Élan
Part of kit 861725700



TESTER TENSION
P/N 414 348 200 Mandatory
All

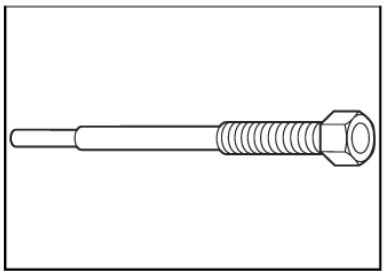


Alignment tool
P/N 420 476 010 Recommended
Skandic WT & Alpine II gearbox

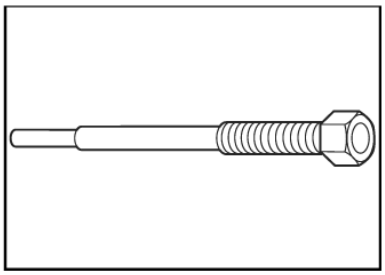


Transmission ball mounting pin
P/N 420 476 020 Recommended
Alpine II gearbox

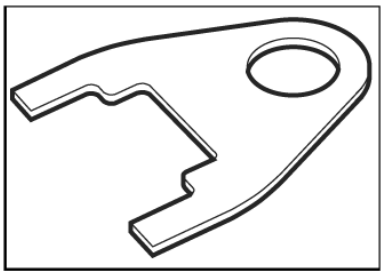
Propulsion / Transmission



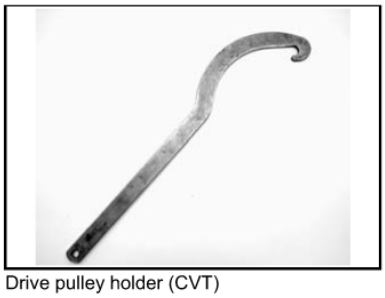
Driven pulley puller (SAE threads)
P/N 529 002 100 Recommended
Square shaft equipped vehicles



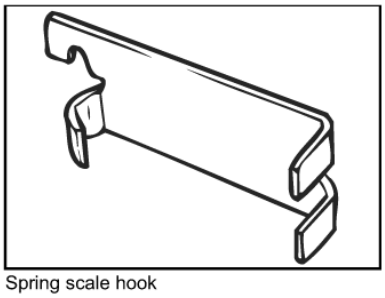
Driven pulley puller (metric threads)
P/N 529 002 800 Recommended
277-377



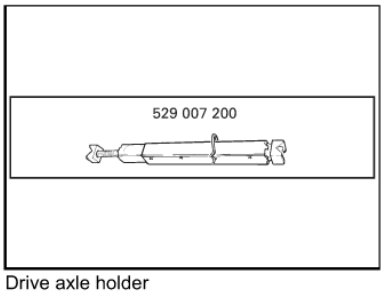
Fork (qty 3)
P/N 529 005 500 Mandatory
All vehicles with TRA drive pulley



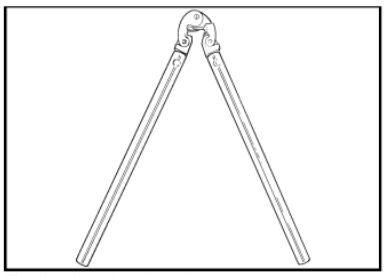
Drive pulley holder (CVT)
P/N 529 006 400 Recommended



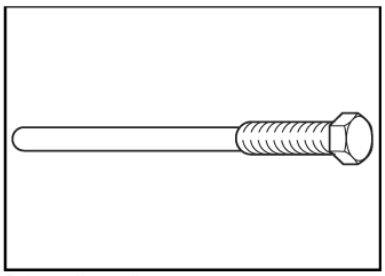
Spring scale hook
P/N 529 006 500 Recommended
Tundra II LT



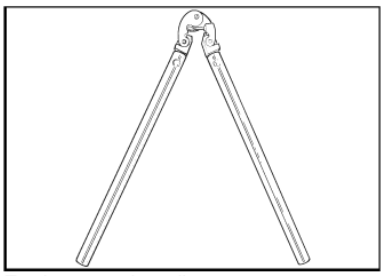
Drive axle holder
P/N 529 007 200 Recommended
All



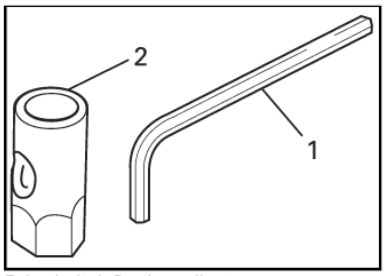
Track wide cleat installer
P/N 529 007 700 Recommended
1992 and older with wide cleat



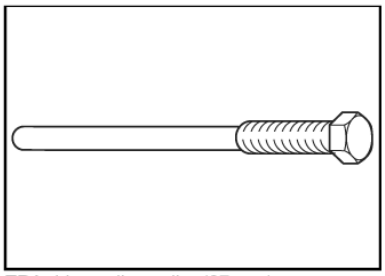
Drive pulley puller
P/N 529 007 900 Mandatory
443, 467, 503.536 & 537 TRA



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

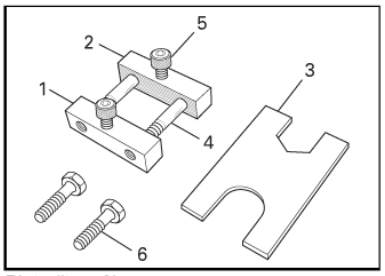


Plate (item 3)
P/N 529 010 600 Recommended
All except Élan
Part of kit 861725700

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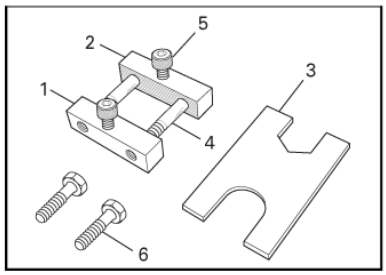
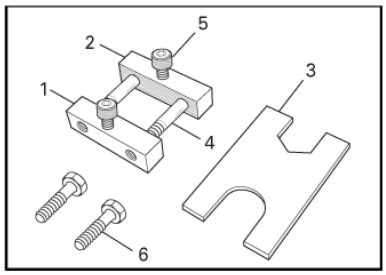
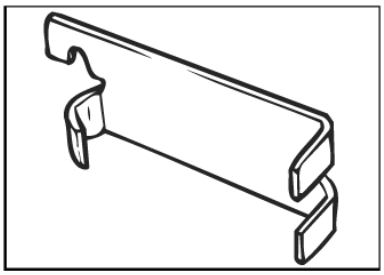
Propulsion / Transmission



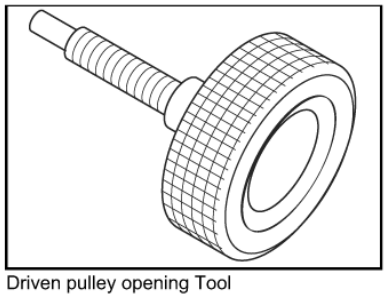
Block with threads (item 1)
P/N 529 010 700 Recommended
All except Élan
Part of kit 861725700



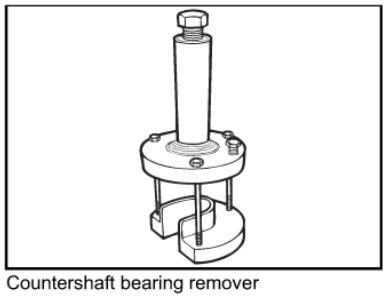
Block without threads (item 2)
P/N 529 010 800 Recommended
All except Élan
Part of kit 861725700



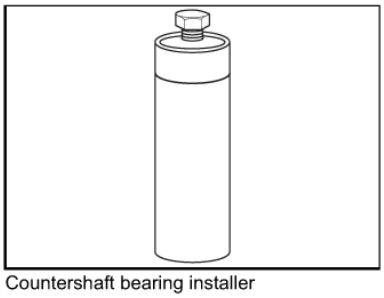
Spring scale Hook
P/N 529 015 200 Recommended
1994 models and older, except Alpine II



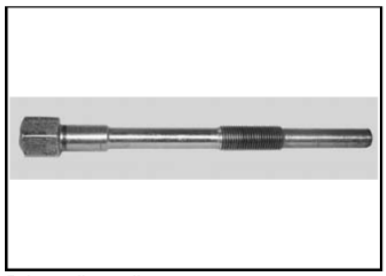
Driven pulley opening Tool
P/N 529 017 200 Recommended
Almost all models



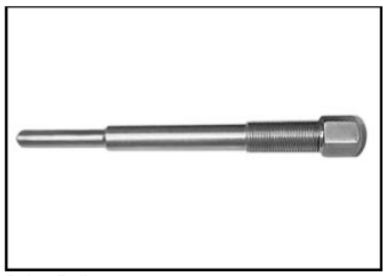
Countershaft bearing remover
P/N 529 018 700 Recommended
PRS chassis



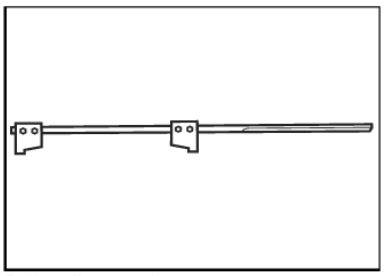
Countershaft bearing installer
P/N 529 018 800 Recommended
PRS chassis



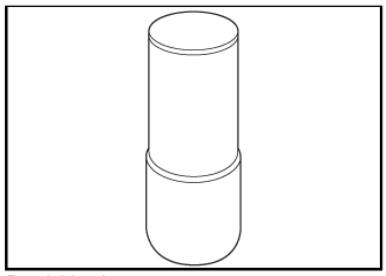
Drive pulley puller
P/N 529 022 400 Mandatory
2003 and up bombardier Lite & TRA



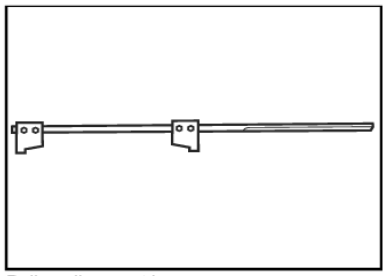
Drive Puller
P/N 529 025 000 Recommended
Skandic 440 LT



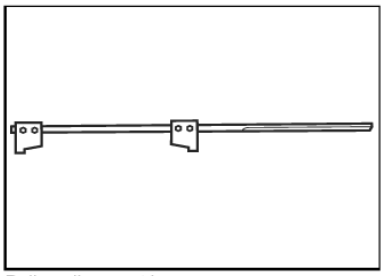
Pulley alignment bar
P/N 529 025 600 Recommended
PRS chassis



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

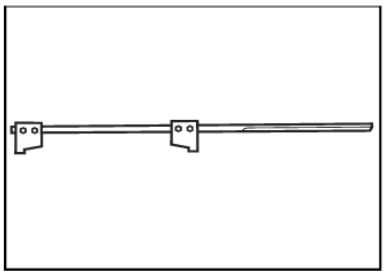


Pulley alignment bar
P/N 529 026 700 Recommended
S-2000, F-2000

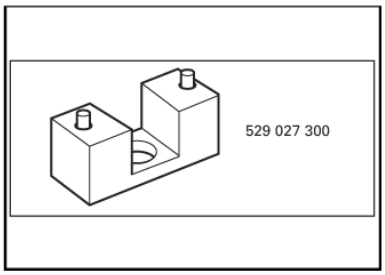


Pulley alignment bar
P/N 529 026 800 Recommended
Safari L

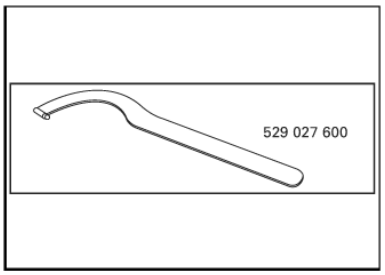
Propulsion / Transmission



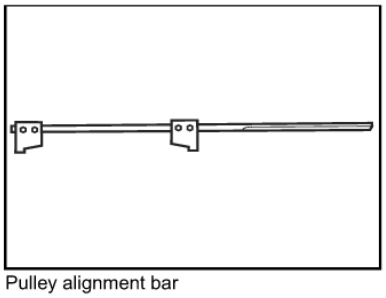
Pulley alignment bar
P/N 529 026 900 Recommended
Tundra II LT/R



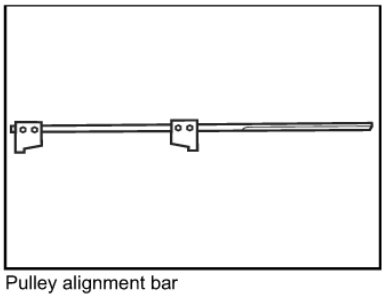
Spring Cover Puller
P/N 529 027 300 Recommended
Bombardier Lite



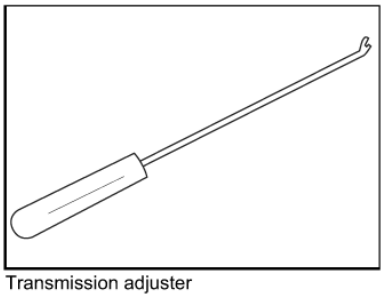
Clutch Holder Tool
P/N 529 027 600 Mandatory
Bombardier Lite



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

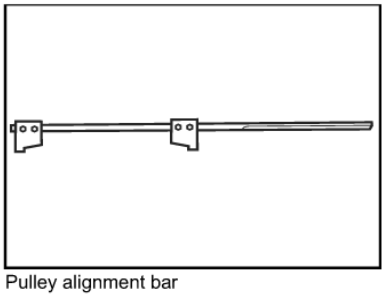


Pulley alignment bar
P/N 529 028 300 Recommended
Élan

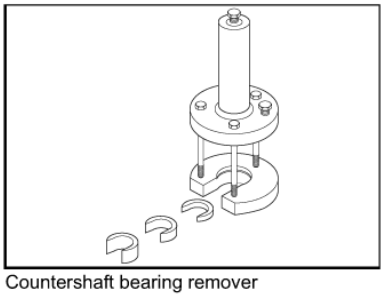


Transmission adjuster
P/N 529 028 500 Recommended
F series with "twist shifter" reverse tr

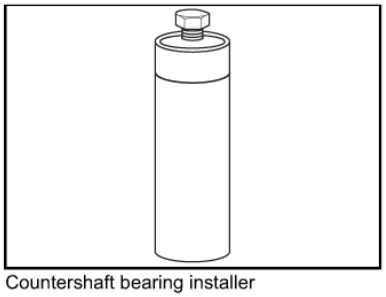
Track cleat installer
P/N 529 028 800 Recommended
1994 and newer models
Replaced by 529036044.



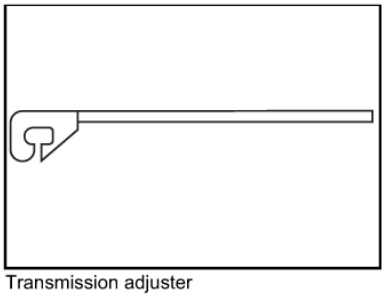
Pulley alignment bar
P/N 529 030 000 Recommended
S series with Bombardier LITE



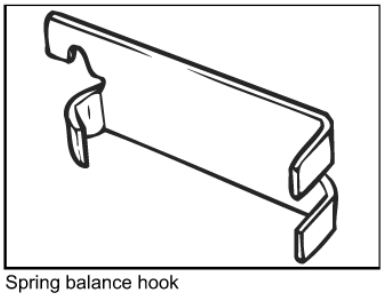
Countershaft bearing remover
P/N 529 030 100 Recommended
F & S series



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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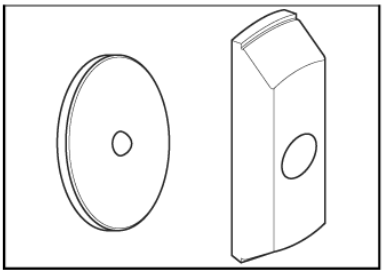
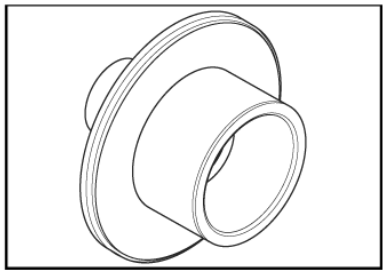
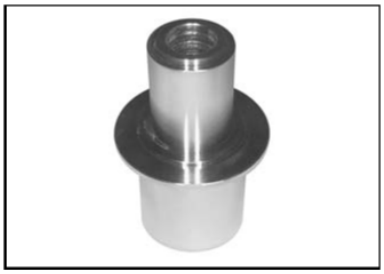
Propulsion / Transmission



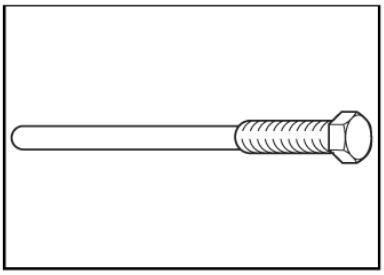
Large bushing extractor
P/N 529 031 100 Recommended
Formula type driven pulley
To use with puller: 529018600



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



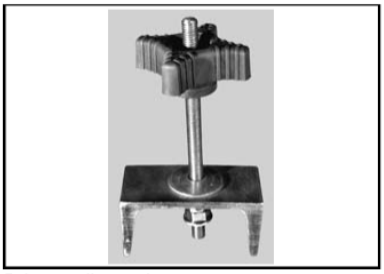
Bushing extractor/installer
P/N 529 031 300 Recommended
TRA cover with replacable bushing



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

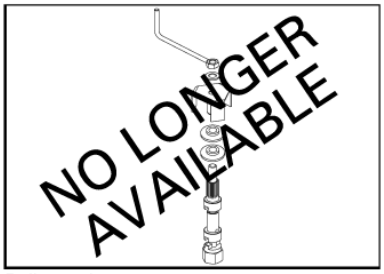
Chaincase seal pusher
P/N 529 032 300 Recommended
Replaced by 529035584

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

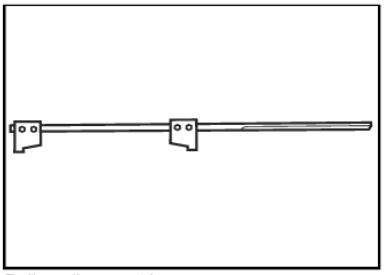


Driven pulley spring compressor
P/N 529 035 300 Recommended
Tundra R

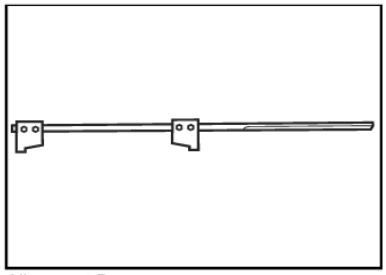
Driven pulley opening tool
P/N 529 035 501 Recommended
HPV, LPV & some Formula pulley



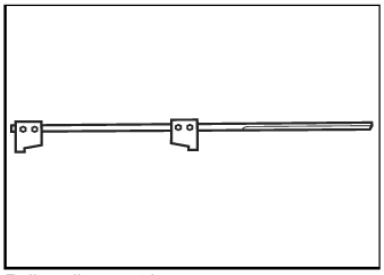
Pulley spring compressor
P/N 529 035 524 Recommended
All
This tool has been replaced by 529036012



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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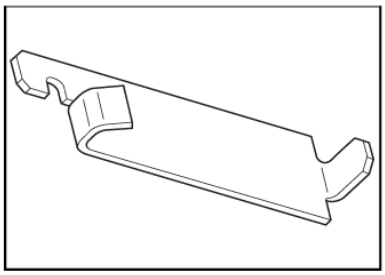
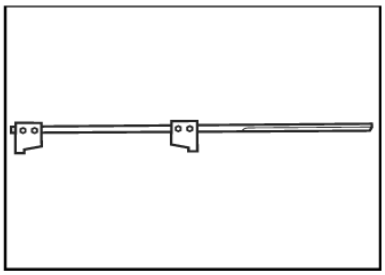
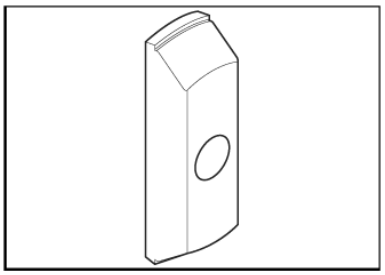
Propulsion / Transmission



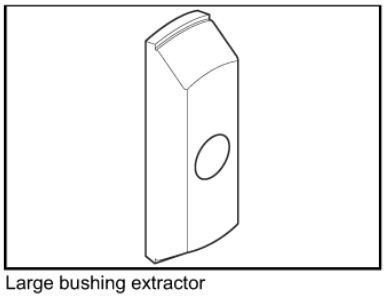
Spring scale hook (long)
P/N 529 035 557 Recommended
CK3 without RER



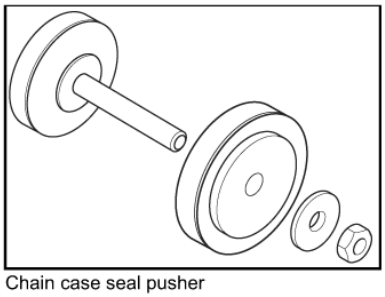
Pulley alignment bar
P/N 529 035 572 Recommended
1998 Mach Z



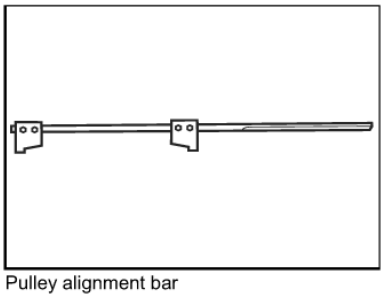
Large bushing extractor
P/N 529 035 575 Recommended
LPV27 driven pulley
To be used with 529035524



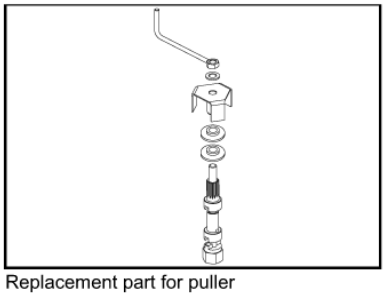
Large bushing extractor
P/N 529 035 576 Recommended
Formula type driven pulley
To be used with 529035524



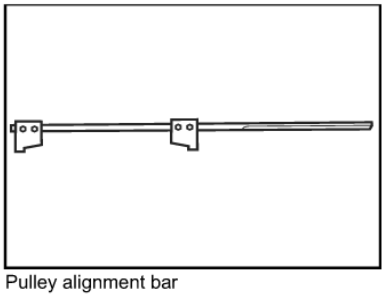
Chain case seal pusher
P/N 529 035 584 Recommended
All Frames
Replaces 529032300



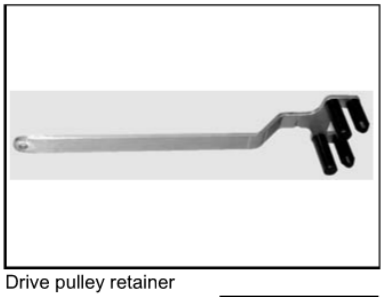
Pulley alignment bar
P/N 529 035 586 Recommended
S & ZX series



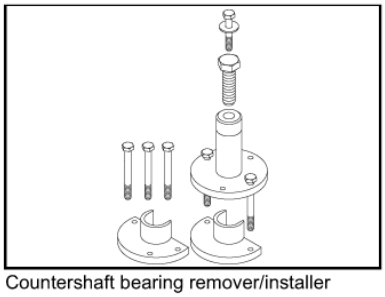
Replacement part for puller
P/N 529 035 588 Recommended
For 529036012



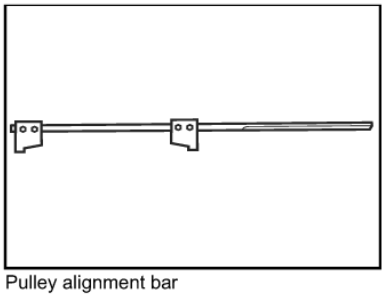
Pulley alignment bar
P/N 529 035 594 Recommended
CK3 series



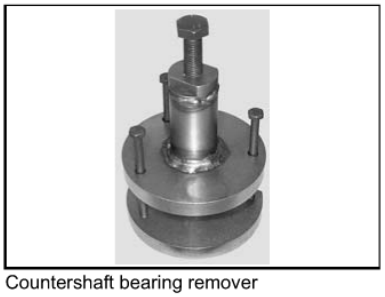
Drive pulley retainer
P/N 529 035 674 Mandatory
All TRA



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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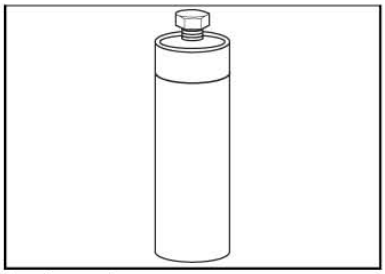
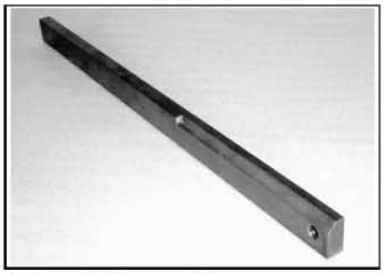
Propulsion / Transmission

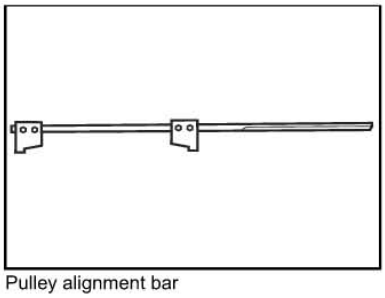


Bearing pusher
P/N 529 035 815 Recommended
Skandic 440 LT

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



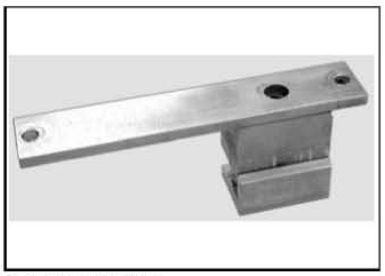
Pulley alignment bar
P/N 529 035 832 Recommended
ZX series

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

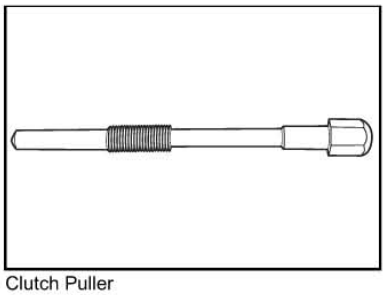
Sliding half bushing remover/installer
P/N 529 035 931 Recommended
TRA III & TRA IV

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

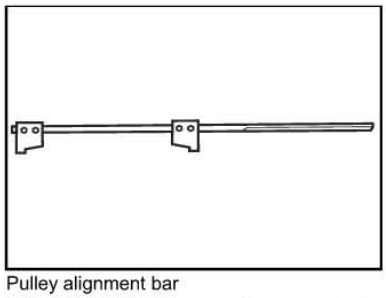
Clutch Support
P/N 529 035 942 Recommended
TRA IV



Belt tensioner tool
P/N 529 035 957 Recommended
Elite



Clutch Puller
P/N 529 035 959 Recommended
Elite

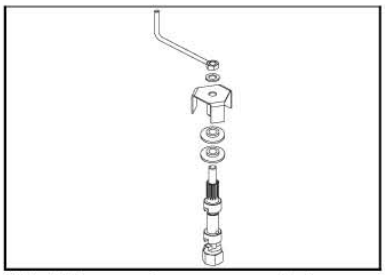


Pulley alignment bar
P/N 529 035 974 Recommended
2004 Skandic WT/SWT/SUV 550

Countershaft alignment bearing
P/N 529 036 009 Recommended
RT

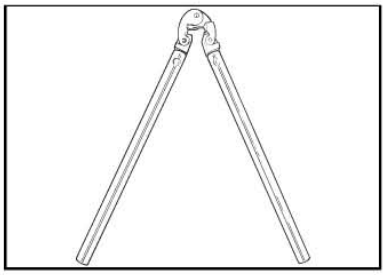
Propulsion / Transmission

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



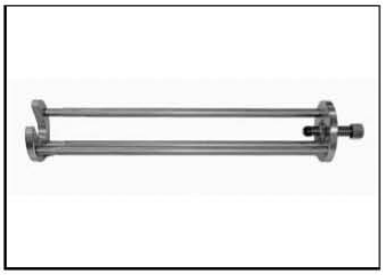
Clutch/driven spring compressor tool
P/N 529 036 012 **Mandatory**
Most drive & driven pulleys

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

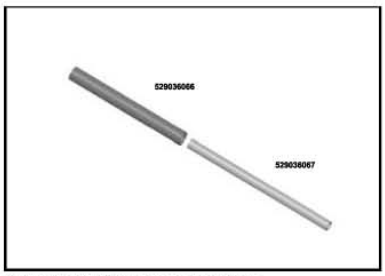


track Cleat Installer
P/N 529 036 044 Recommended
1994 and newer models.
Stronger version of tool 529028800. For newer track design.

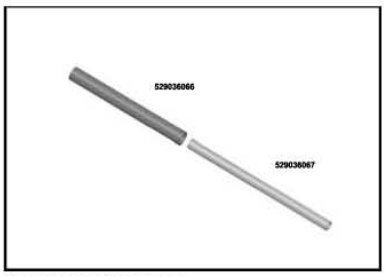
Driven spring compressor
P/N 529 036 064 **Mandatory**
REV-XP



Countershaft bearing remover
P/N 529 036 065 **Mandatory**
REV-XP

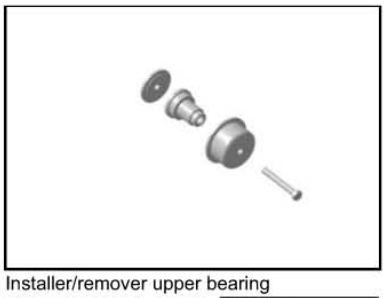


Countershaft bearing installer
P/N 529 036 066 **Mandatory**
REV-XP

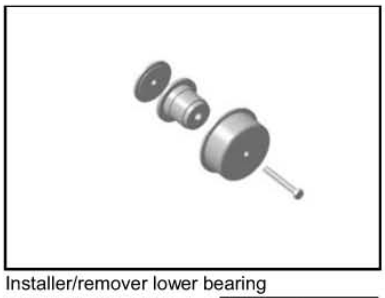


Countershaft support
P/N 529 036 067 **Mandatory**
REV-XP

Retaining upper gear tool
P/N 529 036 110 **Mandatory**
REV-XP



Installer/remover upper bearing
P/N 529 036 111 **Mandatory**
REV-XP

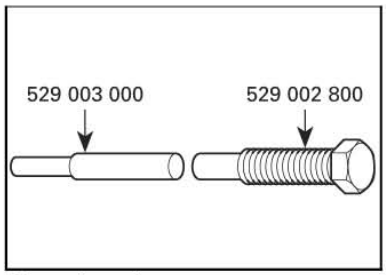


Installer/remover lower bearing
P/N 529 036 112 **Mandatory**
REV-XP

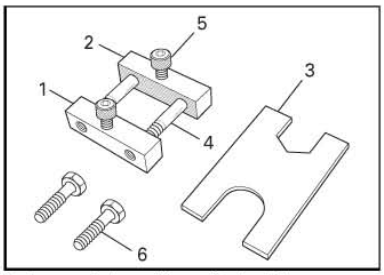
Screw Cap Socket
P/N 529 036 122 Recommended
600 RS

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



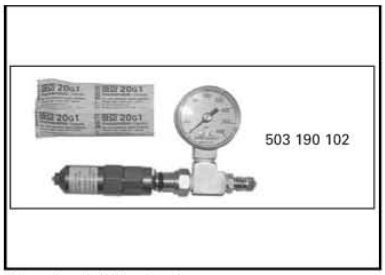
Drive sproket position adjuster kit
P/N 861 725 700 Recommended
All except Élan
Includes: 529010700, 529010800, 529010600, 222007565, 222983065 &

Steering

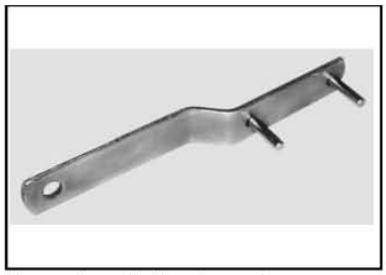
Heated grip installer
P/N 529 035 897 Recommended
Straight grips

Heated grip installer
P/N 529 035 936 Recommended
Models witrh J-hook

Suspension



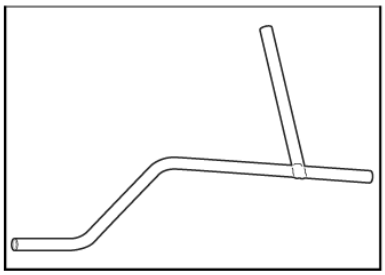
Gas shock filling tool
P/N 503 190 102 Recommended
T/A shocks
To be used with P/N 529035570. Spare needle P/N 529035930.



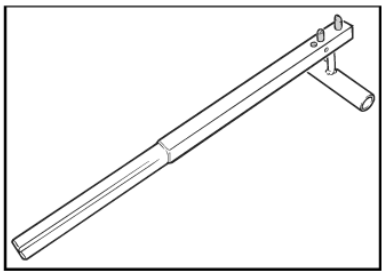
Suspension adjustment wrench
P/N 520 000 126 Recommended
SC-10 II & III

Ball joint installer
P/N 529 000 012 Mandatory
REV, RT, DS 650, DS 450

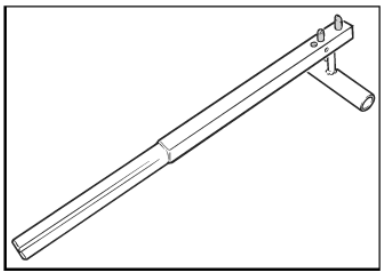
Suspension



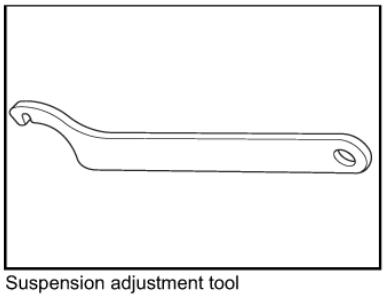
Spring installer
P/N 529 005 000 Recommended
Rear suspension torsion spring removal



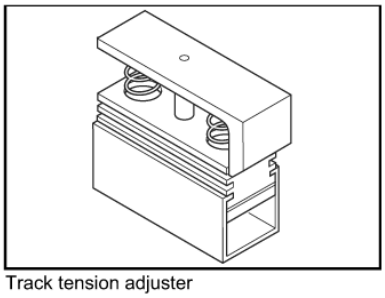
Track cleat remover
P/N 529 008 200 Recommended
1993 and older
Replacement pin 529008204



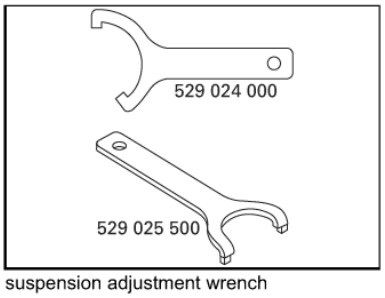
Replacement pin
P/N 529 008 204 Recommended
1993 and older
Remplacment part for tool 529008200.



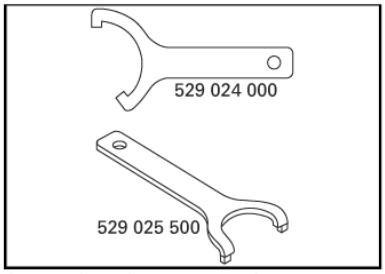
Suspension adjustment tool
P/N 529 017 100 Recommended
1992 and older C-7



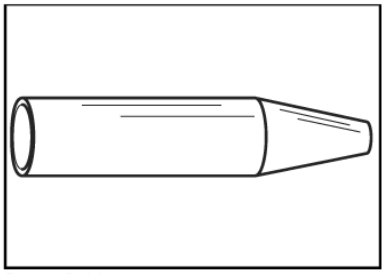
Track tension adjuster
P/N 529 021 500 Recommended
All except Élan



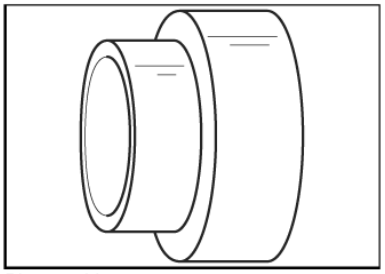
suspension adjustment wrench
P/N 529 024 000 Recommended
1998 and older models, with T/A shock
Included in kit 861743900



Suspension adjustmentwrench
P/N 529 025 500 Recommended
1998 and older models with T/A shock
Included in kit 861743900

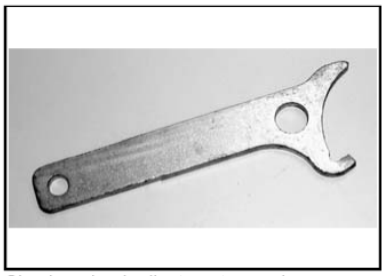


Dome Guide
P/N 529 026 500 Recommended
C-36 HPG T/A Shock

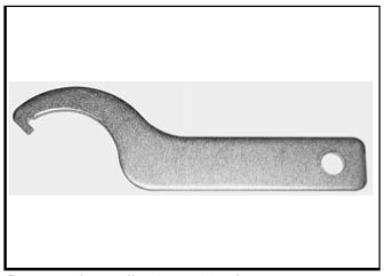


Piston guide
P/N 529 026 600 Recommended
C-36 HPG T/A shock

Track cleat remover
P/N 529 028 700 Recommended
1994 and newer, except Élan & Tundra II



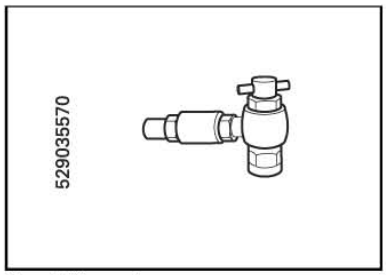
Shock preload adjustment wrench
P/N 529 032 900 Recommended



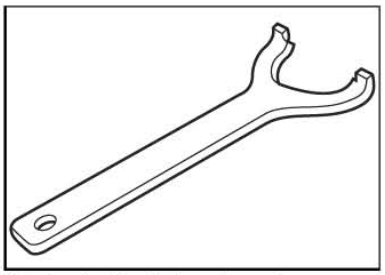
Suspension adjustment tool
P/N 529 034 100 Recommended
CK3 series

Suspension

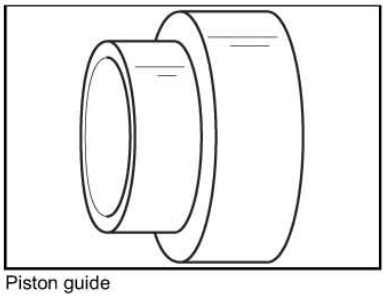
Spring compressor
P/N 529 035 504 Recommended
No longer sold, replaced by P/N 529 036 007.



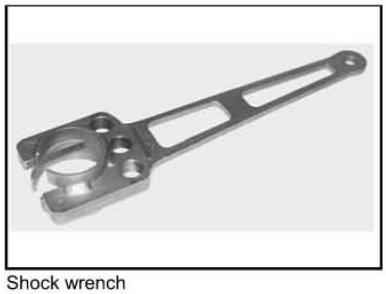
Shock filling valve
P/N 529 035 570 Recommended
T/A shocks



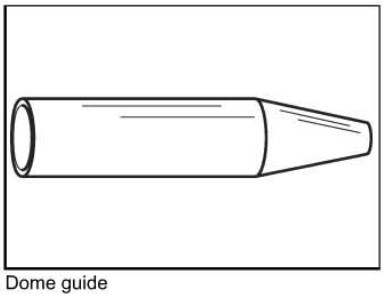
Kayaba shock adjustment wrench
P/N 529 035 582 Recommended
C-7 suspension



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

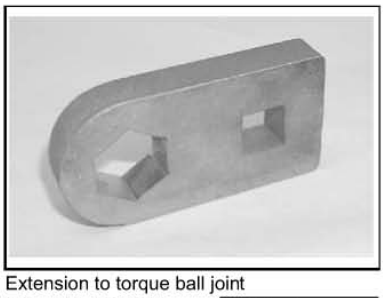
Shock retainer tool
P/N 529 035 769 Recommended
All HPG shock

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

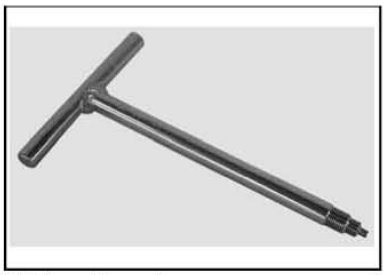
Ball joint installer
P/N 529 035 874 Recommended
2003 REV series

Ball joint installer support
P/N 529 035 875 Mandatory
REV, RT, Outlander

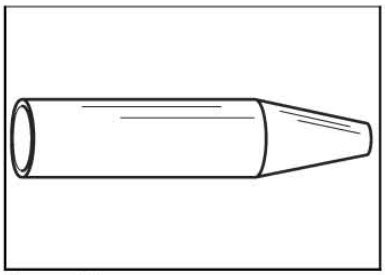


Extension to torque ball joint
P/N 529 035 876 Mandatory
REV, RT

Suspension



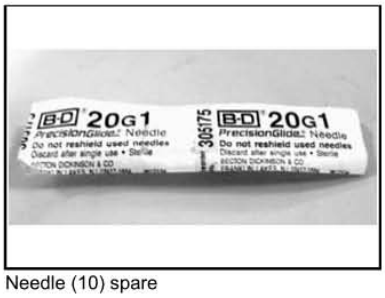
Floating piston puller
P/N 529 035 901 Recommended
HPG T/A shock with externa reservoir



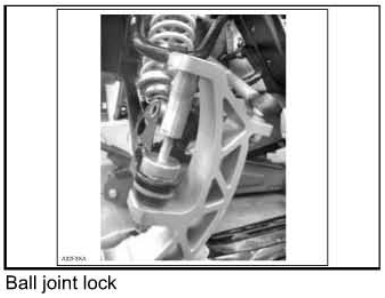
Dome guide
P/N 529 035 902 Recommended
ZX X 440

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

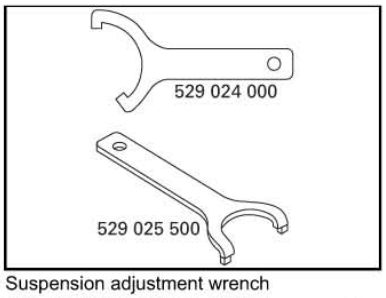


Ball joint lock
P/N 529 035 945 Recommended
REV, RT

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

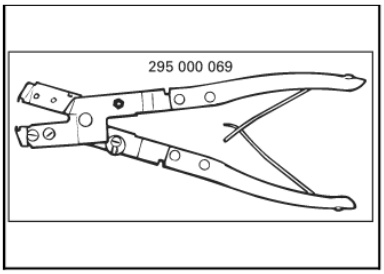
33/38

mdd2009-001-225_en_33

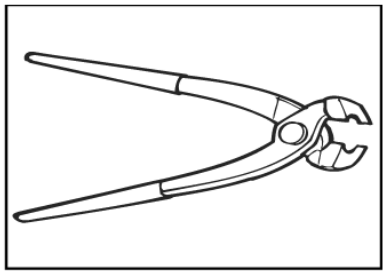
Hull / Body / Chassis

Template for hood drilling
P/N 529 034 400 Recommended
S series
To install gauges.

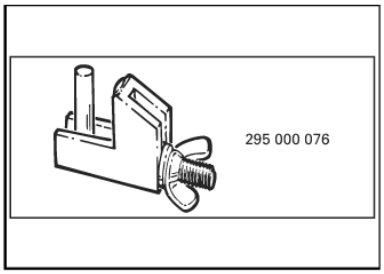
Various



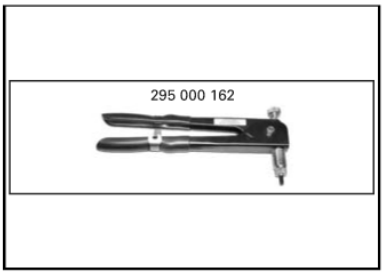
Oetiker Pliers
P/N 295 000 069 Recommended
All models



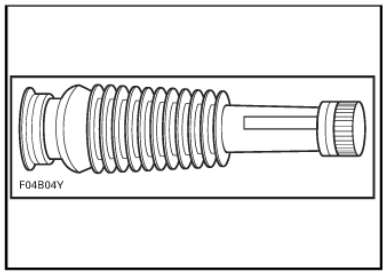
Oetiker pliers
P/N 295 000 070 Recommended
All models



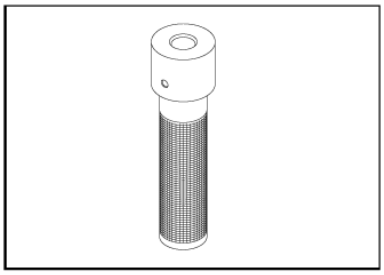
Small hose pincher
P/N 295 000 076 Mandatory
All models



6 mm insert pliers
P/N 295 000 162 Recommended
To install 6mm inserts on frame.

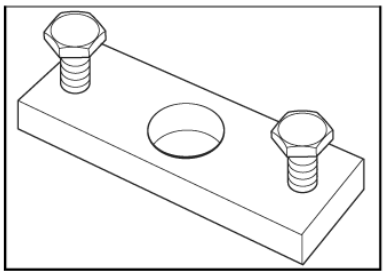


Flexible spout for oil
P/N 414 837 300 Recommended
All models

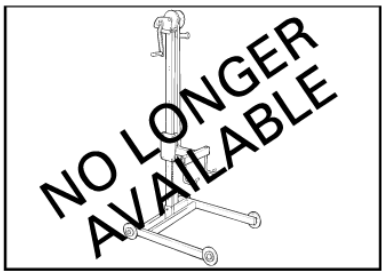


Handle
P/N 420 877 650 Recommended
All models
To be used with many pushers.

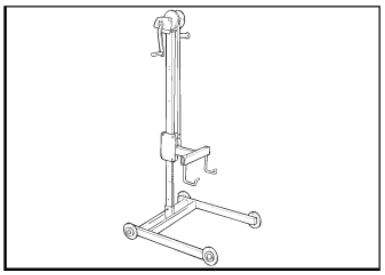
Various



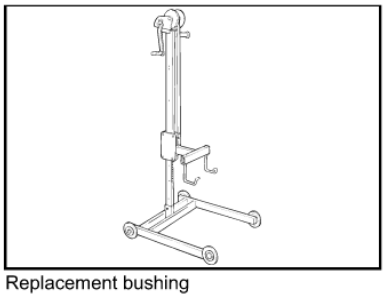
Cam puller
P/N 529 012 900 Recommended
Tundra II LT



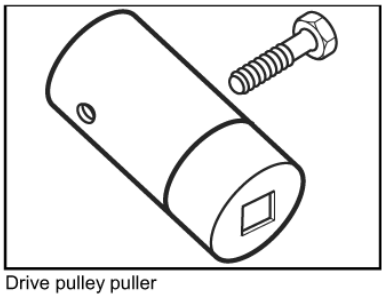
Snomobile rack
P/N 529 020 000 Recommended
All
No longer sold, replacement parts still available.



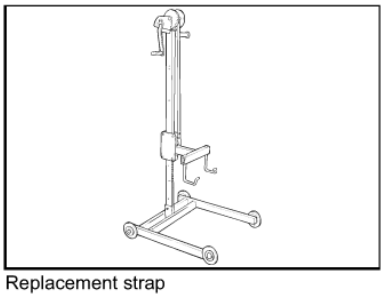
Replacement chain ass'y
P/N 529 020 400 Recommended
For jack 529020000.



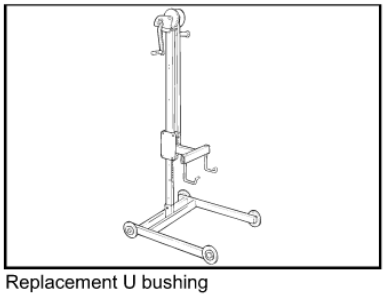
Replacement bushing
P/N 529 020 600 Recommended
For jack 529020000.



Drive pulley puller
P/N 529 023 100 Recommended
Elan

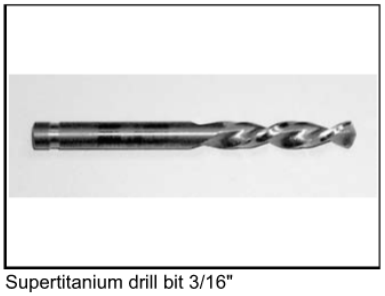


Replacement strap
P/N 529 026 200 Recommended
For jack 529020000

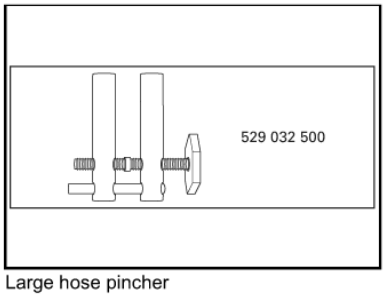


Replacement U bushing
P/N 529 027 703 Recommended
For jack 529020000

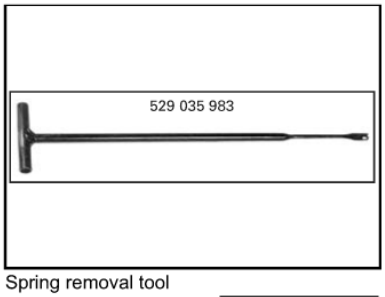
Protective mat
P/N 529 030 600 Recommended
All



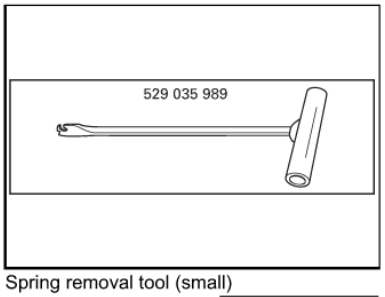
Supertitanium drill bit 3/16"
P/N 529 031 800 Recommended
To drill/remove many kinds of rivet.



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

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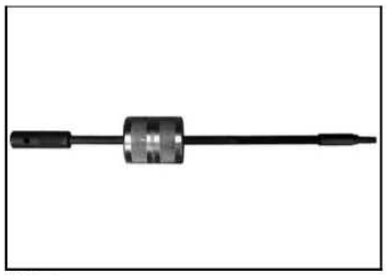
Various

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

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Tool Part Numbers ... Page

These tools are mandatory

Specifications

Objective in this section you will find the most important specifications concerning this year line up.

2009 SHOCK CALIBRATION CHARTS

Shock Calibration Notes:

European shock calibrations

Please note that the European shock calibrations are included in this section. As a general rule these calibrations will be considerably firmer as their riding conditions generally do not include groomed trails.

Nitrogen pressure

The Nitrogen pressure is listed at 20 bar, for those unfamiliar with this measuring system 1 bar = 1 atmosphere of pressure, which equates to kPa (14.7 PSI). Consequently 20 bar of pressure equates to 294 PSI. Just use 300 PSI of Nitrogen to recharge the shocks, the same pressure we list in other manuals.

Shim stack order

One other important note, in most of our shock calibration charts we list the order of the shim stack be it compression or rebound, from the largest diameter to the smallest. As an example on a C 36 shock the first valve or shim against the piston will always be a 30 mm on the compression side and a 26 mm dia. on the rebound side. On some of the newer shock calibration charts you may notice that the calibration shims are listed as they are actually positioned in the shock. The piston will be listed in the center of the calibration chart as it would be in the actual shock body. This could be confusing to someone not aware that the largest diameter shim or valve must ALWAYS be placed against the piston first.

Refer to appropriate *SHOP MANUAL* for complete rebuilding instructions.

2009 SKI-DOO SHOCKS AND FEATURES

SHOCK TYPE	FEATURES
Motion Control	– Economical gas bag shock
HPG	– High Pressure Gas – Steel body
HPG Take-Apart	– High Pressure Gas – Rebuildablerevalvable – Steel body
HPG Clicker	– High Pressure Gas – Compression and rebound damping adjustment (requires screwdriver) – Steel body
HPG Clicker Take-Apart	– High Pressure Gas – Rebuildablerevalvable – Compression and rebound damping adjustment (requires screwdriver) – Steel body
HPG Take-Apart Aluminum	– High Pressure Gas – Rebuildablerevalvable – Aluminum body for lighter weight
HPG Clicker Take-Apart Aluminum	– High Pressure Gas – Rebuildablerevalvable – Compression and rebound damping adjustment (requires screwdriver) – Aluminum body for lighter weight
C-36 Racing Clicker	– High Pressure Gas – Rebuildablerevalvable – High (20 positions) and low (16 positions) speed rebound compression adjustment – Remote reservoir – Same shocks as on MX Z X 440 race sled – Rear shock is piggy back-style – Aluminum body for lighter weight
HPG-VR	– Pressurized gas shock – Steel body – Variable rate

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Calibration Chart for North American and European Dealer for NONE take apart shocks

Front		Center		Rear std	
MXZ & XP Renegade Adrenaline		**MXZ Adrenaline**		**MXZ Adrenaline**	
505.072.261		503.191.591		503.191.583	
Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.203 x 1	26-t0.203 x 1	30-t0.203 x 2	26-t0.254 x 1	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1	15-t0.114 x 1	14-t0.152 x 1	16-t0.114 x 1	14-t0.152 x 1
26-t0.152 x 2	30-t0.152 x 4	26-t0.254 x 3	30-t0.152 x 5	26-t0.254 x 6	30-t0.203 x 4
15-t0.254 x 1	16-t0.152 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1
			17-t0.114 x 1		17-t0.114 x 1
1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)	
IFP height = not t/a		IFP height = not t/a		IFP height = not t/a	
Extended lenght = 431mm		Extended lenght = 331mm		Extended lenght = 437.5mm	
Compressed lenght = 285mm		Compressed lenght = 238mm		Compressed lenght = 288.5mm	
Spring rate = 80 lbs/in		Spring rate = 110 lbs/in		Spring rate = 1.28-95deg	

XR Renegade Adr. Ski		**XR Renegade Adr. Center**		**XP Renegade Adr. Center**		**XR Renegade Adr. Rear**		**XP Renegade Adr. Rear**	
505.072.489		503.192.034		503.192.036		503,192,026		503.192.037	
Valve spec		Valve spec		Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.203 x 3	26-t0.203 x 1	30-t0.203 x 2	26-t0.203 x 1	30-t0.203 x 6	26-t0.203 x 1	30-t0.203 x 6	26-t0.203 x 1	30-t0.203 x 5
15-t0.114 x 1	15-t0.152 x 1	15-t0.114 x 1	17-t0.152 x 1	15-t0.114 x 1	17-t0.152 x 1	16-t0.114 x 1	15-t0.152 x 1	15-t0.114 x 1	15-t0.152 x 1
26-t0.15 x 4	30-t0.203 x 3	26-t0.254 x 3	30-t0.152 x 10	26-t0.203 x 3	30-t0.203 x 5	26-t0.254 x 4	30-t0.203 x 6	26-t0.254 x 3	30-t0.203 x 3
16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1		22-t0.114 x 1		22-t0.114 x 1		16-t0.152 x 1		16-t0.152 x 1
1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)	
IFP height = not t/a		IFP height = not t/a		IFP height = not t/a		IFP height = not t/a		IFP height = not t/a	
Extended lenght = 431mm		Extended lenght = 331mm		Extended lenght = 331mm		Extended lenght = 551mm		Extended lenght = 551mm	
Compressed lenght = 285mm		Compressed lenght = 238mm		Compressed lenght = 238mm		Compressed lenght = 413mm		Compressed lenght = 413mm	
Spring rate = 120 lbs/in		Spring rate = 180 lbs/in		Spring rate = 135 lbs/in		Spring rate = 1.33-100deg		Spring rate = 1.28-95deg	

Summit Everest Ski		**Summit Everest Center**		**Summit Everest Rear**	
505.072.263		503.191.593		503.191.587	
Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.152 x 1	26-t0.254 x 1	30-t0.203 x 1	26-t0.203 x 5	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1	15-t0.114 x 1	14-t0.152 x 1	16-t0.203 x 1	14-t0.152 x 1
26-t0.152 x 4	30-t0.152 x 6	26-t0.254 x 4	30-t0.203 x 5		30-t0.203 x 4
16-t0.203 x 1	16-t0.152 x 1	16-t0.203 x 1	28-t0.114 x 1		28-t0.114 x 1
			24-t0.114 x 1		18-t0.114 x 1
1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)	
IFP height = not t/a		IFP height = not t/a		IFP height = not t/a	
Extended lenght = 431mm		Extended lenght = 331mm		Extended lenght = 437.5mm	
Compressed lenght = 285mm		Compressed lenght = 238mm		Compressed lenght = 288.5mm	
Spring rate = 75 lbs/in		Spring rate = 215/275 lbs/in		Spring rate = 1.27-80deg	

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Calibration Chart for North American European Dealer for take apart shocks

Front		Front		Center		Rear	
XP MXZ TN'T		**XR MXZ TNT**		**XP &XR TNT & MXZ X**		**XP & XR TNT & MXZ X**	
505.071.991		505.072.639		503.191.791		503.192.023	
Valve spec		Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.203 x 1	26-t0.203 x 1	30-t0.203 x 3	26-t0.203 x 1	30-t0.203 x 2	26-t0.203 x 1	30-t0.203 x 7
15-t0.114 x 1	14-t0.152 x 1	15-t0.114 x 1	15-t0.152 x 1	15-t0.114 x 1	14-t0.152 x 1	16-t0.114 x 1	17-t0.152 x 1
26-t0.152 x 4	30-t0.152 x 4	26-t0.15 x 4	30-t0.203 x 3	26-t0.254 x 3	30-t0.152 x 6	26-t0.254 x 4	30-t0.203 x 4
16-t0.254 x 1	28-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1		16-t0.152 x 1		18-t0.114 x 1		16-t0.152 x 1
1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)	
IFP height = 167mm		IFP height = 167mm		IFP height = 119.5mm		IFP height = 171.5mm	
Extended lenght = 431mm		Extended lenght = 431mm		Extended lenght = 331mm		Extended lenght = 437.5mm	
Compressed length = 285mm		ompressed length = 285mm		Compressed lenght = 238mm		Compressed lenght = 288.5mm	
Spring rate = 80 lbs/in		Spring rate = 120 lbs/in		Spring rate = 110 lbs/in		XP Spring rate = 1.28-95deg	
						XR Spring rate = 1.33-100deg	

Front		Front		Center		Rear	
XP MXZ X & Renegade X		**XR MXZ X & Renegade X**		**XP &XR MXZ X_& TNT**		**XP-XR MXZ X**	
505072678 (runnig change)		505.072.491		503.191.791		503.192.024	
Valve spec		Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.203 x 1	26-t0.203 x 1	30-t0.203 x 3	26-t0.203 x 1	30-t0.203 x 2	26-t0.203 x 1	30-t0.203 x 3
15-t0.114 x 1	14-t0.152 x 1	15-t0.114 x 1	15-t0.152 x 1	15-t0.114 x 1	14-t0.152 x 1	16-t0.114 x 1	30-t0.152 x 1
26-t0.152 x 2	30-t0.152 x 4	26-t0.15 x 4	30-t0.203 x 3	26-t0.254 x 3	30-t0.152 x 6	26-t0.254 x 5	15-t0.152 x 1
15-t0.254 x 1	28-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	30-t0.203 x 2
	16-t0.152 x 1		16-t0.152 x 1		18-t0.114 x 1		30-t0.152 x 1
No slit piston		No slit piston		1 slit piston (2 x 0.3)			26-t0.114 x 1
IFP height = 164mm		IFP height = 164mm		IFP height = 119.5mm			16-t0.152 x 1
Extended lenght = 440mm		Extended lenght = 440mm		Extended lenght = 331mm		1 slit piston (2 x 0.3)	
Compressed lenght = 302.7mm		mpressed lenght = 302.7mm		Compressed lenght = 238mm		**BASE VALVE SPEC**	
Spring rate = 80 lbs/in		Spring rate = 120 lbs/in		Spring rate = 110 lbs/in		18-t0.305 x 2 ; 15-t0.305 x 3	
						SPRING 11501-14387	
						IFP height = 119.5mm	
						Extended lenght = 437.5mm	
						Compressed lenght = 413mm	

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Calibration Chart for North American European Dealer for take apart shocks (cont 'd)

Front		Front		Center		Rear	
XP Renegade X & MXZ X		**XR Renegade X & MXZ X**		**XP Renegade X**		**XP & XR Renegade X**	
505072678 (runnig change)		505.072.491		503.192.035		503.192.025	
Valve spec		Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.203 x 1	26-t0.203 x 1	30-t0.203 x 3	26-t0.203 x 1	30-t0.203 x 6	26-t0.203 x 1	30-t0.254 x 5
15-t0.114 x 1	14-t0.152 x 1	15-t0.114 x 1	15-t0.152 x 1	15-t0.114 x 1	17-t0.152 x 1	16-t0.114 x 1	15-t0.152 x 1
26-t0.152 x 2	30-t0.152 x 4	26-t0.15 x 4	30-t0.203 x 3	26-t0.203 x 3	30-t0.203 x 5	26-t0.254 x 4	30-t0.254 x 4
15-t0.254 x 1	28-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1	16-t0.203 x 1	26-t0.114 x 1
	16-t0.152 x 1		16-t0.152 x 1		22-t0.114 x 1		16-t0.152 x 1
No slit piston		No slit piston		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)	
IFP height = 164mm		IFP height = 164mm		IFP height = 119.5		**BASE VALVE SPEC**	
Extended lenght = 440mm		Extended lenght = 440mm		Extended lenght = 331mm		18-t0.305 x 2 ; 15-t0.305 x 3	
Compressed lenght = 302.7mm		mpressed lenght = 302.7mm		Compressed lenght = 238mm		SPRING 11501-14387	
Spring rate = 80 lbs/in		Spring rate = 120 lbs/in		Spring rate = 135 lbs/in		IFP height = 54.5mm	
						Extended lenght = 551mm	
						Compressed lenght = 413mm	
						XP Spring rate = 1.28-95deg	
						XR Spring rate = 1.33-100deg	

Front		Center		Rear	
Summit X		**Summit X**		**Summit X**	
505.072.232		503.191.532		503.191.534	
Valve spec		Valve spec		Valve spec	
REB.	COMP.	REB.	COMP.	REB.	COMP.
26-t0.203 x 1	30-t0.152 x 1	26-t0.254 x 1	30-t0.203 x 1	26-t0.203 x 5	30-t0.203 x 1
15-t0.114 x 1	14-t0.152 x 1	15-t0.114 x 1	14-t0.152 x 1	16-t0.203 x 1	14-t0.152 x 1
26-t0.152 x 4	30-t0.152 x 6	26-t0.254 x 4	30-t0.203 x 5		30-t0.203 x 4
16-t0.203 x 1	16-t0.152 x 1	16-t0.203 x 1	28-t0.114 x 1		28-t0.114 x 1
			24-t0.114 x 1		18-t0.114 x 1
1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)		1 slit piston (2 x 0.3)	
IFP height = 167mm		IFP height = 119.5mm		IFP height = 171.5mm	
Extended lenght = 431mm		Extended lenght = 331mm		Extended lenght = 437.5mm	
Compressed lenght = 285mm		Compressed lenght = 238mm		Compressed lenght = 288.5mm	
Spring rate = 75 lbs/in		Spring rate = 215/275 lbs/in		Spring rate = 1.27-80deg	

Optional shock calibrations

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
	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 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	
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	
Add front spring 90lbs/po	
505072230	yellow
505072537	black

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 option hard	
503.192.023	
Valve spec	
REB.	COMP.
26-t0.203 x 1	30-t0.254 x 5
16-t0.114 x 1	19-t0.152 x 1
26-t0.254 x 4	30-t0.203 x 7
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	
Add front spring 90lbs/po	
505072230	yellow

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	
Add front spring 90lbs/po	
505072230	yellow
505072537	black

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Ski-Doo Ignition Timing Chart MY2009

2008-03-05

Engine			ECM		Timing					Break-in		Stroke	Rod
Description		Rotax #	Supplier	Calibration #	Angle	mm	.000"	RPM	Note	Angle	min	mm	mm
280F	RF	380.277.450	Ducati	512.060.007	22	3.61	142.1	3500		N/A	N/A	66.0	120.0
552F	RF	380.552.450	Ducati	512.060.158	22	2.77	108.9	3500		N/A	N/A	61.0	120.0
552F	REV	380.552.150	Ducati	512.059.947	22	2.77	108.9	3500		N/A	N/A	61.0	120.0
600RS (Racing)	XP	380.593.205	Megatech	512.060.266	20	2.79	110.0	3500		N/A	N/A	73.0	132.0
500SS	REV	380.593.150	Megatech	512.060.059	20	2.49	98.1	3500		-3	60	65.8	125.0
500SS	XP	380.593.120	Megatech	512.060.263	20	2.49	98.1	3500		-3	60	65.8	125.0
600HO ETEC	XP	380.593.550	Evinrude	512.060.090	28	5.39	212.2	3500	With BUDS only			73.0	132.0
800R S.-L.	XP	380 797 120 380 797 125	Megatech	512.060.258	18	2.37	93.4	3500	TPS Disconnected	-2	120.180	75.7	132.0
800R H.-A.	XP	380 797 120 380 797 125	Megatech	512.060.261	18	2.37	93.4	3500	TPS Disconnected	-2	120.180	75.7	132.0
V-810	RF	380.810.110	Synerject	420.665.910	20	2.33	91.7	1400 (Idle)	TDC marks located on magneto, Crank Position Sensor (CPS) removed.	N/A	N/A	61.5	116.9
1203	XR		Synerject										

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Fuel, oil and spark plug for MY2009 engine.

Engine	Model	Fuel	Idle openning	Oil	Oil pump adj.	Spark plug type	Spark plug gap	Timing @ 3500 RPM
280F	RF	87	1.6mm	minéral	Visual	NGK - BR9ES	0.45mm	3.61mm / 22 deg
550F	RF	87	1.6mm	minéral	Visual	NGK - BR9ES	0.45mm	2.77mm / 22 deg
550F	REV	87	1.6mm	minéral	Visual	NGK - BR9ES	0.45mm	2.77mm / 22 deg
550F (Summit)	REV	87	1.9mm	minéral	Visual	NGK - BR9ES	0.45mm	2.77mm / 22 deg
500SS	XP	87	1.5mm	semi-synth.	16.5mm	NGK - BR10ECS	0.8mm	2.49mm / 20 deg
500SS (Summit)	XP	87	2.0mm	semi-synth.	16.5mm	NGK - BR10ECS	0.8mm	2.49mm / 20 deg
600HO ETEC	XP	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	2.37mm / 20 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	RF	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 et 2000 RPM

Disconnect TPS to verify timing.

***Measure idle only on **B.U.D.S**

MIKUNI
CARBURETOR CALIBRATION
ROTAX PRODUCTION 2008
BOMBARDIER MODELS 2009

ENG	PF	MODEL NAME	TYPE	DPM VENT	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. Ref.	P.S.	FLOAT LEVEL ± 1	RPM ±200
277	RF	Tundra R Adventure STD (Lynx)				VM34-618	403.138.768	6DH4-3	O-6 (159)	N/A	2.5	1,2(3)	1.0	1.6	200(5)	*N/A*	40	*2.0*	*N/A*	24.9	1650
552	RF	Tundra LT 550 R Freestyle Back Country 550 Adventure LU Fan (Lynx)				VM30-214	403.138.786	6BFY46-3	P-7 (159)	N/A	2.5	1.2(3)	1.0	1.5	190(5)	*N/A*	45	*1.5*	N/A	23.9	1650
552	REV	MXZ 550 R X Fan GSX 550 R Fan GTX 550 R Fan SUMMIT 550 Fan Europe				VM34-617	403 138 772	6BCY40-4	P-7 (159)	N/A	2.5	1.2(3)	1.0	1.6	260(5)	*N/A*	45	[2,0]	N/A	23.9	1650
552	REV	SUMMIT 550 R Fan				VM34-616	403 138 773	6BCY40-3	P-7 (159)	N/A	2.5	1.2(3)	1.0	1.9	220(5)	*N/A*	45	[2,0]	N/A	23.9	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(3)	1.0	1.5	190(5)	*N/A*	40	*2.5*	N/A	23.9	1650
593	XP	MXZ 500 SS R Trail MXZ 500 SS R TNT GSX 500 SS R Sport GTX 500 SS R Sport	HTD			TM40-394	403.138.804	9CEY01-58-3	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 500SS R Everest	HTD			**TM40-394**	**403.138.804**	9CEY01-58-3	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
593	Yeti2	Skandic 600 WT				VM38-449	M19169	6DGL24-3	P-9 (480)	N/A	2.5	1,5(3)	1.5	1.5	330	*N/A*	40	2.0	N/A	18.1	1900
593RS	XP	MXZ x 600 Racing				TMX38-66	403.138.796	6FDY1-58-2	Q-0	N/A	4.0	1,5(3)	N/A	2.5	**280**	*160*	45	[1,0]	N/A	N/A	1600
797	XP	SUMMIT 800 R Everest SUMMIT 800 R X SUMMIT 800 R 50th	TPS,DPM,HTD	1.2	2.0	TM40-400	403.138.806	9EGI04-58	P-0M(4)	1.6	2.0	1,5(3)	1.1	2	480(5)	*N/A*	17.5	N/A	1.5	N/A	1900
797	XP	MXZ 800 R Adrenaline MXZ 800 R X MXZ 800 R Renegade MXZ 800 R Renegade 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 straigth float arm
(3) Viton type
(4) Press fit type nickel plated
(5) DPM vent hose or HAC vent hose or carbs vent hoses 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)

(7) Preliminary release #1: Main body
Preliminary release #2: Jet needle, needle jet, piston valve, valve seat, starter jet.
Final release: Idle, main jet, power jet, air jet, pilot jet, air screw, pilot screw, float level.

Color Identification : MAG= Red, CENTER= Yellow, PTO= Blue.
Note: No color if carburetors are identical

BOMBARDIER SKI-DOO - 2009 MODELS / MODELES 2009

TRANSMISSION SYSTEM DEFINITION / DEFINITION DU SYSTEME DE TRANSMISSION

	Model / Modèle	Engine / Moteur	Platform	Status	Drive pulley / Poulie motrice									
					Model / Modèle	Taper / Cone	Governor cup / Cuvette de régulateur	Slider / Glissière	Spring / Ressort	Pin or weight / Pine ou pesée	Ramp or bloc / Rampe ou bloc	Pos. calib. or / ou capsule	Engage-ment ±100 RPM	Max. speed / Régime max. ±100 RPM
1	Skandic TUNDRA R 136x16x1.25	277	RF	Final	PWB-NG50	1:10	D1	N/A	(Yellow / Green)	5 x 417 114 400	417.118.100	1 x 417 114 500	3300	6950
2	Tundra LT 550F 16 X 154 X 1.5	552	RF	Final	PWB-NG50	1:10	D1	N/A	(Yellow / Yellow)	1 x 417 120 400 + 5 x 417 114 400	417 --- ---	1 x 417 114 500	2700	6900
	Freestyle 550 R Back Country	552	RF	Final	PWB-NG50	1:10	D1	N/A	(Yellow / Yellow)	1 x 417 120 400 + 3 x 417 114 400	417 --- ---	1 x 417 114 500	2700	6900
3	Freestyle 550 R Back Country Eur.	552	RF	Final	PWB-NG50	1:10	D1	N/A	(Yellow / Yellow)	1 x 417 120 400 + 3 x 417 114 400	417 --- ---	1 x 417 114 500	2700	6900
4	MXZ 550 F, X	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Purple / Yellow)	1 x 417 120 400 + 2 x 417 114 400	417 --- ---	1 x 417 114 500	3500	7000
	MXZ 550 F, X Eur.	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Purple / Yellow)	1 x 417 120 400 + 2 x 417 114 400	417 --- ---	1 x 417 114 500	3500	7000
5	GSX 550 F	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Purple / Yellow)	1 x 417 120 400 + 2 x 417 114 400	417 --- ---	1 x 417 114 500	3500	7000
6	GTX 550 F 136"	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Blue / Orange)	1 x 417 120 400 + 2 x 417 114 400	417 --- ---	1 x 417 114 500	3000	7000
	GTX 550 F 136" Eur	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Blue / Orange)	1 x 417 120 400 + 2 x 417 114 400	417 --- ---	1 x 417 114 500	3000	7000
7	SUMMIT 550 F 136"x16x1.75 Europe	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Purple / Yellow)	1 x 417 120 400 + 4 x 417 114 400	417 ---- --	1 x 417 114 500	3500	7000
8	SUMMIT 550 F 136"x16x1.75	552	REV	Final	PWB-NG50	1:10	D1	N/A	(Purple / Yellow)	1 x 417 120 400	417 --- ---	1 x 417 114 500	3500	7000
9	Skandic WT,SUV	552	Yeti II	Final	TRA 3	1:7.5	Cushion drive	Vespel	Yellow / Green	Solid	600	3	2800	6900
10	MXZ 500 SS R Trail, TNT	593	XP	Final	TRA 3	1:7.5	Cushion drive	Torlon	Violet / Violet	Solid	412	3	3800	8000
	MXZ 500 SS R Trail, TNT, Eur.	593	XP	Final	TRA 3	1:7.5	Cushion drive	Torlon	Violet / Violet	Solid	412	3	3800	8000
11	Summit 500 SS R Everest, 146 x 15 x 2	593	XP	Prel	TRA 3	1:7.5	Cushion drive	Torlon	Green / Pink	1 x 417 222 477 + 1 x 206 262 099	417	1	4100	8000
12	GSX 500 SS R Sport	593	XP	Final	TRA 3	1:7.5	Cushion drive	Torlon	Blue / Violet	Solid	412	3	3400	8000
13	GTX 500 SS R Sport 136	593	XP	Final	TRA 3	1:7.5	Cushion drive	Torlon	Blue / Violet	Solid	412	3	3400	8000
14	Skandic WT	593	Yeti II	Final	TRA 3	1:7.5	Cushion drive	Vespel	Yellow / Red	417 222 594 Long	600	3	2800	7100
15	MXZ 600HO Di R Adrenaline, TNT, X, 50th	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Torlon	Blue / Violet	Solid	412	3	3400	8100
16	MXZ 600HO Di R Ren, Ren X 1.25 t	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Torlon	Blue / Violet	Solid	412	3	3400	8100
17	GSX 600HO Di Limited	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Torlon	Blue / Violet	Solid	412	3	3400	8100
	GTX 600HO Di Limited 137"	600HO E-Te	XR	Final	TRA 3	1:7.5	Cushion drive	Torlon	Blue / blue	Solid	414	3	3400	8100
19	Summit 600HO Di R Everest, 146 x 16 x 2.25	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Vespel	Violet / Green	1 x 417 222 477 + 1 x 206 262 099	440	1	4000	8100
20	Summit 600HO Di R Everest, 146 x 16 x 2.25 Eur	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Vespel	Violet / Green	1 x 417 222 477 + 1 x 206 262 099	440	1	4000	8100
21	Summit 600HO Di R X, 154 x 16 x 2.25	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Vespel	Violet / Green	1 x 417 222 477 + 1 x 206 262 099	440	1	4000	8100
22	Summit 600HO Di R X, 154 x 16 x 2.25 Eur	600HO E-Te	XP	Prel	TRA 3	1:7.5	Cushion drive	Vespel	Violet / Green	1 x 417 222 477 + 1 x 206 262 099	440	1	4000	8100
	Expedition 600HO Sdi	593 Sdi	XU	Prel	TRA 3	1:7.5	Cushion drive	Vespel	Yellow / Red	417 222 594 Long	600	3	3000	8100
23	Expedition TUV, Skandic SUV 600SDi	593 Sdi	Yeti II	Final	TRA 3	1:7.5	Cushion drive	Vespel	Yellow / Green	Solid	410	3	3000	8000
24	MXZ X 600RS	600 RR	XP	Prel	TRA 3-light	1:7.5	Light-cushion dr.	Vespel	417 223 050 brown/brown280-460	1 x 417 222 595 + 1 x 206 262 599	438	4	5700	8400
25	MXZ 800R R Adrenaline, X	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Violet / Blue	417 222 594 Long	414	3	3800	8150
26	MXZ 800R R Ren, Ren X 1.25 t	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Violet / Blue	417 222 594 Long	413	3	3800	8150
	MXZ 800R R Ren, Ren X 1.25 t Eur.	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Violet / Blue	417 222 594 Long	413	3	3800	8150
27	SUMMIT 800R R Everest, X, 146 x 2.25	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Green / Violet	1 x 417 222 595 + 1 x 206 262 599	441	1	3800	8150
28	SUMMIT 800R R Everest, X, 50th, 154 x 2.25	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Green / Violet	1 x 417 222 595 + 1 x 206 262 599	441	1	3800	8150
29	SUMMIT 800R R X 154 Europe	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Violet / Blue	417 222 594 Long	413	3	3800	8150
30	SUMMIT 800R R Everest, X, 163 X 2.25	800R	XP	Final	TRA 7	1:7.5	Cushion drive	Vespel	Green / Violet	1 x 417 222 595 + 1 x 206 262 599	441	1	3800	8150
31	Legend V-800 Touring 136x15x.88	810	RF	Final	TRA 4 LD	1:7.5	Standard	Vespel	Red / Yellow	417 222 594 Long	616	3	2100	7200
	Legend V-800 Touring 136x15x.88 Eur.	810	RF	Final	TRA 4 LD	1:7.5	Standard	Vespel	Red / Yellow	417 222 594 Long	616	3	2100	7200
32	Tundra LT V-800 154x16x1.5	810	RF	Final	TRA 4 LD	1:7.5	Standard	Vespel	Red / Yellow	Solid	616	3	2100	7200
33	Expedition V-800 TUV 156x20x1.25	810	Yeti II	Final	TRA 4 LD	1:7.5	Standard	Vespel	Red / Red	417 222 594 Long	614	3	2500	7250
34	Skandic V-800 SWT 156x24x1.25	810	Yeti II	Final	TRA 4 LD	1:7.5	Standard	Vespel	Red / Red	417 222 594 Long	614	3	2500	7250
35	MXZ 1200 TNT, X	1203	XR	Final	TRA 4 LD	1:7.5	Standard	Vespel	Blue-Blue	417 222 594 Long	617	3	2800	7800
36	MXZ 1200 Ren, Ren X, 16 x 1.25 t	1203	XR	Final	TRA 4 LD	1:7.5	Standard	Vespel	Blue-Blue	417 222 594 Long	617	3	2800	7800
37	GSX 1200 Limited	1203	XR	Final	TRA 4 LD	1:7.5	Standard	Vespel	Yellow-Blue	417 222 594 Long	618	3	2500	7800
38	GTX 1200 Limited, Special Edition137"	1203	XR	Final	TRA 4 LD	1:7.5	Standard	Vespel	Yellow-Blue	417 222 594 Long	618	3	2500	7800

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BOMBARDIER SKI-DOO - 2009 MODELS / MODELES 2009

TRANSMISSION SYSTEM DEFINITION / DEFINITION DU SYSTEME DE TRANSMISSION

	Model / Modèle	Engine / Moteur	Platform	Status	Belt / Courroie	Driven pulley / Poulie menée						Carter				
						Model / Modèle	Ressort / Spring		Preload new / after break-in period Tension neuf / après rodage (±0.7 kg)	Cam / Came (°) / Type	Aerodyn. covers / Couvercles aérodyn.	Sprocket top / Pignon haut	Sprocket bottom / Pignon bas	Chaine / Chain		Sprocket / Barbottin
							Color	Force						Maille/Link	width	
1	Skandic TUNDRA R 136x16x1.25	277	RF	Final	417.300.326	LPV 27	Brown		0.0	44	N/A	15	45	72	13	9 teeth
2	Tundra LT 550F 16 X 154 X 1.5	552	RF	Final	415.060.600	LPV 27	Brown		0.0	44	N/A	17	45	72	13	8 teeth 2.86"
	Freestyle 550 R Back Country	552	RF	Final	415.060.600	LPV 27	Brown		0.0	44	N/A	19	43	72	13	9 teeth
3	Freestyle 550 R Back Country Eur.	552	RF	Final	415.060.600	LPV 27	Brown		0.0	44	N/A	19	45	72	13	9 teeth
4	MXZ 550 F, X	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	19	43	72	13	10 teeth
	MXZ 550 F, X Eur.	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	19 steel	43	72	13	10 teeth
5	GSX 550 F	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	19	43	72	13	10 teeth
6	GTX 550 F 136"	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	21	45	74	13	9 teeth
	GTX 550 F 136" Eur	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	19	43	72	13	9 teeth
7	SUMMIT 550 F 136"x16x1.75 Europe	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	19	45	74	13	9 teeth
8	SUMMIT 550 F 136"x16x1.75	552	REV	Final	415.060.600	LPV 27	Brown		0.0	44-40	No / Non	19	45	74	13	9 teeth
9	Skandic WT,SUV	552	Yeti II	Final	605.348.425	Team 6K	or/blu/blu		8.9 / 8.0	40-30	No / Non	2.04	N/A	N/A	N/A	8 teeth
10	MXZ 500 SS R Trail, TNT	593	XP	Final	417.300.197	X-Type	Black	700N	0.0	42 - XP	No / Non	25	45	104	13	8 teeth
	MXZ 500 SS R Trail, TNT, Eur.	593	XP	Final	417.300.197	X-Type	Black	700N	0.0	42 - XP	No / Non	23	45	104	13	8 teeth
11	Summit 500 SS R Everest, 146 x 15 x 2	593	XP	Prel	417.300.197	X-Type	Black	700N	0.0	43-47 - XP	No / Non	19	49	104	13	8 teeth
12	GSX 500 SS R Sport	593	XP	Final	417.300.197	X-Type	Black	700N	0.0	42 - XP	No / Non	24	45	104	13	8 teeth
13	GTX 500 SS R Sport 136	593	XP	Final	417.300.197	X-Type	Black	700N	0.0	42 - XP	No / Non	23	45	104	13	8 teeth
14	Skandic WT	593	Yeti II	Final	605.348.425	Team 6K	or/blu/blu		8.4 / 7.5	35-30	No / Non	1.7	N/A	N/A	N/A	8 teeth
15	MXZ 600HO Di R Adrenaline, TNT, X, 50th	00HO E-Te	XP	Prel	417.300.383	X-Type	Green	800N	0.0	48 - XP	No / Non	25	45	104	13	8 teeth
16	MXZ 600HO Di R Ren, Ren X 1.25 t	00HO E-Te	XP	Prel	417.300.383	X-Type	Green	800N	0.0	48 - XP	No / Non	21	45	104	13	8 teeth
17	GSX 600HO Di Limited	00HO E-Te	XP	Prel	417.300.383	X-Type	Green	800N	0.0	48 - XP	No / Non	25	45	104	13	8 teeth
	GTX 600HO Di Limited 137"	00HO E-Te	XR	Final	417.300.383	X-Type	Black	700N	0.0	42 - XP	No / Non	23	45	104	13	8 teeth
19	Summit 600HO Di R Everest, 146 x 16 x 2.25	00HO E-Te	XP	Prel	417.300.383	X-Type	Black	700N	0.0	41-45 -XP	No / Non	19	49	104	13	8 teeth
20	Summit 600HO Di R Everest, 146 x 16 x 2.25 Eur	00HO E-Te	XP	Prel	417.300.383	X-Type	Black	700N	0.0	41-45 -XP	No / Non	19	49	104	13	8 teeth
21	Summit 600HO Di R X, 154 x 16 x 2.25	00HO E-Te	XP	Prel	417.300.383	X-Type	Black	700N	0.0	41-45 -XP	No / Non	19	49	104	13	8 teeth
22	Summit 600HO Di R X, 154 x 16 x 2.25 Eur	00HO E-Te	XP	Prel	417.300.383	X-Type	Black	700N	0.0	41-45 -XP	No / Non	19	49	104	13	8 teeth
	Expedition 600HO Sdi	593 Sdi	XU	Prel	417.300.383	X-Type	Blue	700N	0.0	42 - XP	No / Non	1.98	N/A	N/A	N/A	8 teeth
23	Expedition TUV, Skandic SUV 600SDi	593 Sdi	Yeti II	Final	605.348.425	Team 6K	or/gol/gol		8.6 / 7.7	35-30	No / Non	1.7	N/A	N/A	N/A	8 teeth
24	MXZ X 600RS	600 RR	XP	Prel	417.300.288	Team 417 127 064	Light blue	180 / 260	0.0	56-40-31		23 Steel	49 BRP	106	13	8 teeth 2.86"
25	MXZ 800R R Adrenaline, X	800R	XP	Final	417.300.383	X-Type	Green	800N	0.0	47-44 - XP	No / Non	27	45	106	13	8 teeth
26	MXZ 800R R Ren, Ren X 1.25 t	800R	XP	Final	417.300.383	X-Type	Green	800N	0.0	44-42 - XP	No / Non	25	45	104	13	8 teeth
	MXZ 800R R Ren, Ren X 1.25 t Eur.	800R	XP	Final	417.300.383	X-Type	Green	800N	0.0	44-42 - XP	No / Non	23	45	104	13	8 teeth
27	SUMMIT 800R R Everest, X, 146 x 2.25	800R	XP	Final	417.300.377	X-Type	Violet	1000N	0.0	43-47 - XP	No / Non	21	45	102	13	8 teeth
28	SUMMIT 800R R Everest, X, 50th, 154 x 2.25	800R	XP	Final	417.300.377	X-Type	Violet	1000N	0.0	43-47 - XP	No / Non	21	45	102	13	8 teeth
29	SUMMIT 800R R X 154 Europe	800R	XP	Final	417.300.377	X-Type	Violet	1000N	0.0	44-42 - XP	No / Non	21	45	102	13	8 teeth
30	SUMMIT 800R R Everest, X, 163 X 2.25	800R	XP	Final	417.300.377	X-Type	Violet	1000N	0.0	43-47 - XP	No / Non	21	49	106	13	8 teeth
31	Legend V-800 Touring 136x15x.88	810	RF	Final	417.300.197	LPV VSA	Pink		7.7 / 6.8	44	No / Non	21	44	74	13	9 teeth
	Legend V-800 Touring 136x15x.88 Eur.	810	RF	Final	417.300.197	LPV VSA	Pink		7.7 / 6.8	44	No / Non	19	44	74	13	9 teeth
32	Tundra LT V-800 154x16x1.5	810	RF	Final	417.300.197	LPV VSA	White		7.7 / 6.8	44	No / Non	17	44	72	13	8 teeth 2.86"
33	Expedition V-800 TUV 156x20x1.25	810	Yeti II	Final	605.348.425	Team 6K	or/gol/gol		8.6 / 7.7	40-30	No / Non	2.04	N/A	N/A	N/A	8 teeth
34	Skandic V-800 SWT 156x24x1.25	810	Yeti II	Final	605.348.425	Team 6K	or/gol/gol		8.6 / 7.7	40-30	No / Non	2.29	N/A	N/A	N/A	8 teeth
35	MXZ 1200 TNT, X	1203	XR	Final	417.300.383	X-Type	Beige		8.3-7.5	50-44	No / Non	24	43	104	13	8 teeth
36	MXZ 1200 Ren, Ren X, 16 x 1.25 t	1203	XR	Final	417.300.383	X-Type	Beige		8.3-7.5	47-44	No / Non	24	45	104	13	8 teeth
37	GSX 1200 Limited	1203	XR	Final	417.300.383	X-Type	Beige		8.3-7.5	50-44	No / Non	24	43	104	13	8 teeth
38	GTX 1200 Limited, Special Edition137"	1203	XR	Final	417.300.383	X-Type	Beige		8.3-7.5	50-44	No / Non	24	45	104	13	8 teeth

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2009 XP Track Dimension
2009 XP Dimension Chenille

MODEL / MODÈLE	ENGINE / MOTEUR	PLATFORM / PLATE FORME	TRACK NUMBER / NUMÉRO DE CHENILLE	ORIGINAL DIMENSION / DIMENSION D'ORIGINE	DIMENSION MAX. WITHOUT STUD / DIMENSION MAX. SANS CRAMPON	DIMENSION MAX. WITH STUD / DIMENSION MAX. AVEC CRAMPON	DIMENSION MAX. STUD / DIMENSION MAX. CRAMPON
MXZ TRAIL	500 SS	XP	504152760	15 X 120 X 1	15 X 120 X 1,75	15 X 120 X 1,25	1.325
MXZ TNT	500 SS	XP	504152760	15 X 120 X 1	15 X 120 X 1,75	15 X 120 X 1,25	1.325
MXZ ADRÉNALINE	800	XP	504152606	15 X 120 X 1,25	15 X 120 X 1,75	15 X 120 X 1,25	1.325
MXZ ADRÉNALINE	600	XP	504152606	15 X 120 X 1,25	15 X 120 X 1,75	15 X 120 X 1,25	1.325
MXZ RENEGADE	800	XP	504152734	16 X 137 X 1,25	16 X 137 X 1,75	16 X 137 X 1,25	1.325
MXZ RENEGADE	600	XP	504152734	16 X 137 X 1,25	16 X 137 X 1,75	16 X 137 X 1,25	1.325
MXZ X	800	XP	504152606	15 X 120 X 1,25	15 X 120 X 1,75	15 X 120 X 1,25	1.325
MXZ X	600	XP	504152606	15 X 120 X 1,25	15 X 120 X 1,75	15 X 120 X 1,25	1.325
MXZ RENEGADE X	800	XP	504152734	16 X 137 X 1,25	16 X 137 X 1,75	16 X 137 X 1,25	1.325
MXZ RENEGADE X	600	XP	504152734	16 X 137 X 1,25	16 X 137 X 1,75	16 X 137 X 1,25	1.325
MXZ RENEGADE X	600	XP	504152803	16 X 137 X 1,75	16 X 137 X 1,75	N/A	N/A
SUMMIT EVEREST	800	XP	504152799	16 X 145 X 2,25	16 X 145 X 2,25	N/A	N/A
SUMMIT EVEREST	800	XP	504152800	16 X 154 X 2,25	16 X 154 X 2,25	N/A	N/A
SUMMIT X	800	XP	504152736	16 X 145 X 2,25	16 X 145 X 2,25	N/A	N/A
SUMMIT X	800	XP	504152799	16 X 145 X 2,25	16 X 145 X 2,25	N/A	N/A
SUMMIT X	800	XP	504152605	16 X 154 X 2,25	16 X 154 X 2,25	N/A	N/A
SUMMIT X	800	XP	504152800	16 X 154 X 2,25	16 X 154 X 2,25	N/A	N/A
SUMMIT X	800	XP	504152735	16 X 163 X 2,25	16 X 163 X 2,25	N/A	N/A
SUMMIT X	800	XP	504152801	16 X 163 X 2,25	16 X 163 X 2,25	N/A	N/A
GSX SPORT	500 SS	XP	504152760	15 X 120 X 1	15 X 120 X 1,75	15 X 120 X 1,25	1.325
GSX LIMITED	800	XP	504152760	15 X 120 X 1	15 X 120 X 1,75	15 X 120 X 1,25	1.325
GSX LIMITED	600	XP	504152760	15 X 120 X 1	15 X 120 X 1,75	15 X 120 X 1,25	1.325
GSX LIMITED TOURING	600	XP	504152760	15 X 120 X 1	15 X 120 X 1,75	15 X 120 X 1,25	1.325
GTX SPORT	500 SS	XP	504152863	15 X 137 X 1	15 X 137 X 1	15 X 137 X 1	1.075
GTX LE	600	XR	504152755	15 X 137 X 1	15 X 137 X 1	15 X 137 X 1	1.075
GTX LE	1200 4-TEC	XR	504152755	15 X 137 X 1	15 X 137 X 1	15 X 137 X 1	1.075
GTX SE	1200 4-TEC	XR	504152755	15 X 137 X 1	15 X 137 X 1	15 X 137 X 1	1.075

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

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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

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Next Generation Lubricants
XPS
TM
This new premium 2-stroke synthetic blend formulation was developed specifically for Rotax E-TEC®, SDI and POWER T.E.K.™ engines and delivers ultimate performance. It extends engine life and reduces smoke emissions and combustion deposits compared to conventional oils.
When you invest in a superior snowmobile, protecting the engine with the best lubricant on the market is a scientific insurance for peak performance and long term use.
NEW PREMIUM 2-STROKE SYNTHETIC BLEND OIL
XPS
XPS
mdd2009-001-125_en

Annexes

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 warrantied **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 Bombardier ATV 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

REBUILT PART	PART	ENGINE TYPE	COOLING SYSTEM F/C - LC	AMOUNT CYL.	YEAR	DESCRIPTION	ORIGINAL PART #
SKI-DOO							
421000031	CRANKSHAFT	277	F/C	1	1993 to 2005		420995301
421000639		277	F/C	1	2006		420995307
421000009		377 - 443	F/C	2	1992 to 1996		420887245 / 420996332
421000154		377 - 443	F/C	2	1997 to 2006		420889630
421000150		454	L/C	2	1995 to 1998		420887962 / 420887966
421000151		494	L/C	2	1996 to 2000		420886933
421000567		493	L/C	2	2000 to 2002		420888462
421000599		493	L/C	2	2003		420888465
421000011		503	F/C	2	1990 to 1996	Keyway at 3 o'clock	420996445
421000155		503	F/C	2	1997 to 2003		420888390 / 420888391
421000601		552	F/C	2	2003 to 2006		420 889 062
421000021		532-536-537-582	L/C	2	1985 to 1996		420996628
		583			1990 to 1993		
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 & 2004		420888757
421000622		593SDI	L/C	2	2004 & 2006	593 SDI ONLY	420889098 / 420890950
421000046		670	L/C	2	1995 & 1996	Order needle bearing # 420 832 425	420887987
					1997 to 1999		
421000312		670	L/C	2	1998 & 1999	Summit X & MXZ H.O.	420887986
421000574		693	L/C	2	2000 to 2002	DIECAST ENGINE ONLY	420888286
421000609		693 593HO	L/C	2	2003 to 2006	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 & 2006	HO ONLY	420889671
421000606		793SDI	L/C	2	2003 & 2004	SDI ONLY	420889106
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
421000103		377	F/C	2	1995 & 1996	Pto	420823799
421000104		377	F/C	2	1984 to 1994	Mag	420823805
421000105		377	F/C	2	1995 & 1996	Mag	420823809
421000202		377	F/C	2	1997 & 1998	Mag	420923405
421000559		377	F/C	2	1999 to 2004	Pto	420923403
421000560		377	F/C	2	1999 to 2004	Mag	420923408
421000107		443	F/C	2	1996	Mag	420923356
421000203		443	F/C	2	1997 to 2004	Pto	420923348 / 420923790
421000114		467	L/C	2	1985 to 1995	Comes with 2 bolts	420823697 / 420923149
421000113		467	L/C	2	1985 to 1995		420823699
421000568		493	L/C	2	2001 to 2003		420923855 / 420613605
421000115		494	L/C	2	1996 & 1997	# 420 887 553 at 69,39 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
421000500		503	F/C	2	1993 to 2003		420923417
421000600		552	F/C	2	2003 to 2006		420923975
421000116		582	L/C	2	1993		420913449
421000117		582	L/C	2	1994 to 1996		420913446
421000118		583	L/C	2	1989 to 1993		420913078
421000120		583	L/C	2	1995 to 1999		420923670
421000578		593	L/C	2	1999 to 2004	All models	420923620 / 420613625
421000121		643	L/C	2	1991 & 1992		420913077
421000124		670	L/C	2	1995 & 1996	Mach 1 only	420923199
421000550		670	L/C	2	1993 to 1999	HO cylinder fits all except Mach 95 & 96	420923700 / 420923193
421000125		779	L/C	3	1994 to 1996		420913339

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REBUILT PART	PART	ENGINE TYPE	COOLING SYSTEM F/C - LC	AMOUNT CYL.	YEAR	DESCRIPTION	ORIGINAL PART #
SKI-DOO							
421000065	NICASYL CYL.	454	L/C	2	1995 & 1996		420923170
421000610		454	L/C	2	1997 & 1998		420923172
421000605		593HO	L/C	2	2003 to 2006	H.O. ONLY	420613711
421000624		593SDI	L/C	2	2004 to 2006	593 SDI ONLY	420613940 / 420613944
421000066		599	L/C	3	1995		420923110
421000067		599	L/C	3	1996 to 1999		420923112
421000555		693	L/C	2	2000	SANDCAST Cylinder bolts M8	420923691
421000558		693	L/C	2	2000 to 2002	DIECAST WITH DEKO SLOTS	420923692 / 420923693
421000566		693	L/C	2	2001 to 2004	WITH OUT DEKO SLOTS	420923695
421000064		699	L/C	3	1997 to 2000		420923420
421000579		793	L/C	2	2000 to 2004	WITH OUT DEKO SLOTS	420923811 / 420923817
421000597		793	L/C	2	2002		420923810 / 420923815
421000604		793HO	L/C	2	2003 to 2006	H.O. ONLY	420613852
421000068		809	L/C	3	1997 to 2003		420923480
421000636		995SDI	L/C	2	2005 & 2006	CYLINDER BLOCK	420613746
421000175	SHORT BLOCK	377	F/C	2	1995 to 2003		N/A
421000625		377	F/C	2	2004 to 2006	New 377 with oil check valves	
421000575		493	L/C	2	2000 to 2002		420049302
421000617		493	L/C	2	2003		
421000173		494	L/C	2	1996		N/A
421000410		503	F/C	2	1994 to 1999		N/A
421000602		552	F/C	2	2003 to 2006	Except REV and Exped. Models	420055201
421000638		552	F/C	2	2005 & 2006	REV and Expedition Models	420055206
421000413		583	L/C	2	1998 & 1999		N/A
421000616		593	L/C	2	2001 to 2006		
421000615		593HO	L/C	2	2003 to 2006	H.O. ONLY	
421000623		593SDI	L/C	2	2004 & 2006	593 SDI ONLY	
421000414		670	L/C	2	1998 & 1999	1 exhaust pipe	N/A
421000415		670	L/C	2	1998 & 1999	Summit X & MXZ H.O.	N/A
421000614		693	L/C	2	2001 to 2004		
421000613		793	L/C	2	2001 to 2003		
421000612		793HO	L/C	2	2003 to 2006	H.O. ONLY	
421000637		995SDI	L/C	2	2005 & 2006		420099502
CAN-AM							
421000628	CRANKSHAFT	175	L/C	1	2003 to 2005	RALLY-175	420296420
421000157		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	
SEA-DOO							
421000071	CRANKSHAFT	587	L/C	2	1988 to 1993	Labyrinthe Seal	290886797
421000072		587	L/C	2	1994 to 1996		290886797
421000024		657	L/C	2	1993		290886558
421000073		657	L/C	2	1994 & 1995		290886558
421000074		717	L/C	2	1995 to 2003		290887867
421000075		787	L/C	2	1995	XP 800	290888103
421000076		787	L/C	2	1996 to 1999	Carb.	290888103
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
421000052	CYLINDER	587	L/C	2	1989 to 1991	Yellow	290913286
421000053		587	L/C	2	1992 to 1996	White	290913376
421000054		657	L/C	2	1993 & 1994	Except White XP 1994	290913386
421000055		657	L/C	2	1994	White XP	290913388
					1995	All White X	
421000056		717	L/C	2	1995 to 2003		290923805
421000057		787	L/C	2	1995	USE 421 000 059	290923500
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.	290923718
421000205		947DI	L/C	2	2002 & 2003	D.I.	420613576

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REBUILT PART	PART	ENGINE TYPE	COOLING SYSTEM F/C - LC	AMOUNT CYL.	YEAR	DESCRIPTION	ORIGINAL PART #
SEA-DOO							
421000093	SHORT BLOCK	587	L/C	2	1989 to 1991	Yellow	290881440
421000094		587	L/C	2	1992 to 1996	White	290881444
421000095		657	L/C	2	1993	XP White	290881448
					1994	SPX - XPI - GTX White	
421000096		657X	L/C	2	1994	XP White	290881449
					1995	White SPX -GTX	
421000097		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
421000629	**4-TEC ENGINE**	1503 N/A	L/C	3	2002 to 2005	Complete Engine	270000645
421000630		1503 B/V	L/C	3	2003 to 2005	Complete Engine	270000644
421000631		1503 I/C	L/C	3	2004 & 2005	Complete Engine	270000643
421000640		1503 DT	L/C	3	2006	Oversize Long Block	420150345
421000641		1503 N/A	L/C	3	2006	Oversize Long Block	420150315
421000642		1503 I/C	L/C	3	2006	Oversize Long Block	420150335
421000632	**Supercharger**	1503 B/V	L/C	3	2003 to 2005	with ceramic shims	420881931
421000633		1503 I/C	L/C	3	2004 & 2005	with ceramic shims	420881933
REPAIR ONLY							
421000051	**Ski / Sea-Doo**		L/C		N/A	Resleeve cylinder	N/A
421000060	**Ski / Sea-Doo**				N/A	Crankcase brass plate insert	N/A
421000062	**Ski / Sea-Doo**				N/A	Rotary valve cover refacing	N/A
421000063	**Ski / Sea-Doo**				N/A	Oversized cylinder	N/A
421000050	**Ski / Sea-Doo**		F/C		N/A	Resleeve cylinder	N/A
421000621	**Ski-Doo**	GEARBOX REPAIR REQUEST			N/A	*Dealer completes form from boss web*	N/A
421000635							

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 Bombardier
- Core is returned in original packaging to avoid freight damages

Not respecting those requirements could result in a refused or reduced core credit.

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LEGEND	
CR	CRANKSHAFT
CY	CYLINDER
CY N	CYLINDER (NICASIL)
REP	REPAIR ONLY
SB	SHORT BLOCK

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	-	

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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	RPM	PART NUMBER (999 999 999)
	☐F ☐C		☐km/h ☐MPH		- -

MODEL NUMBER (9999)	SERIAL NUMBER (99999)	MILEAGE	Select Measure
			☐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 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 Licence 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
Licence No.:	Serial No.:		Safety Device in Use: ☐ Yes ☐ No
☐ Owned ☐ Borrowed ☐ Rent			Warning or Caution Statement Present: ☐ Yes ☐ No
Date of Pre-Delivery:	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:			

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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 Licence 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			
Licence 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 Pre-Delivery:	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:	If no, what was changed ?			Were All Components on Any Security Item Fastened to the Product? : ☐ Yes ☐ No			
Zip/Postal Code:	Were Replacement Components Sold by Product Manufacturer or Representative? : ☐ Yes ☐ No			Were Replacement Components Sold by Product Manufacturer or Representative? : ☐ Yes ☐ No			
Product Registration No.:	Were All Components on Any Security Item Fastened to the Product? : ☐ Yes ☐ No			If no, what was changed ?			
Insured: ☐ Yes ☐ No				Were all scheduled maintenance procedures performed by an Authorized BRP dealer ? ☐ Yes ☐ No			
Policy No.:	Was Routine Lubrication and Maintenance Given ☐ Yes ☐ No to the Products as Specified by the Manufacturer?			Was Routine Lubrication and Maintenance Given to the Products as Specified by the Manufacturer? ☐ Yes ☐ No			
Name of Ins. Company:							

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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 ☐

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INJURY DATA

Person Injured:	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 Limp	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 INJURED	
If narration is done by someone else than the person injured, 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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