

K-TECH NEWS

FALL 1998

THE KAWASAKI TECHNICAL MAGAZINE

VOL. 11, NO. 3

1999 ULTRA 150



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ROUTE LIST SERVICE PARTS SALES
PLEASE RETURN TO SERVICE LIBRARY

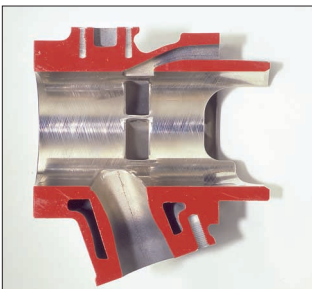
New for '99

by Ray St. John
Supervisor, Technical
Writing

1999 JET SKI® Ultra 150

The most interesting part of this new boat is probably its engine. The three separate cylinders displace a total of 1,176cc, thanks to a bore and stroke of 80 x 76mm. Three 40mm, downdraft, constant velocity carburetors feed the crankcase through 8-petal reed blocks, helping this big triple put out an honest 145 horsepower at 7000 rpm. The CV carbs allow the engine to idle smoothly and respond to throttle quickly while putting out fewer exhaust emissions.

Power output is aided by a completely dry exhaust system that keeps cooling water in the exhaust system's water



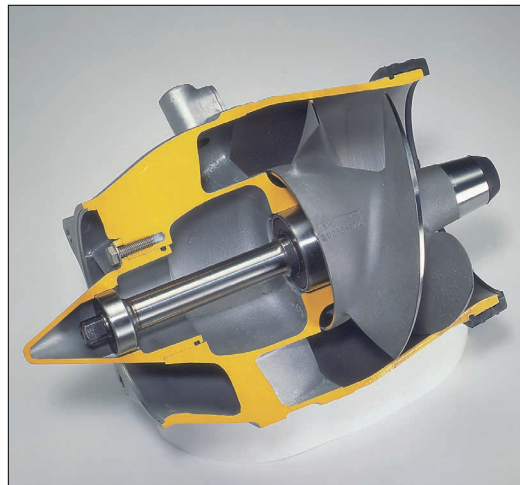
Tough Nikasil coating transfers heat quickly and eliminates the heavy steel liners.

jacket, not joining the exhaust gas flow until it reaches the water box muffler. This keeps steam from blocking the exhaust flow to help produce more power.

Rubber engine mounts, two at the rear and one in the front, work with new dual counter-rotating balancers to cancel vibration. The balancers are gear driven off each end of the crankshaft, and are completely contained in the crankcases. Output from the engine's new variable output oil pump keeps their bearings lubed.

To stuff this big engine into the hull, Kawasaki's engineers leaned the cylinders over at a 45° angle toward the starboard side, plugged the carbs into the crankcase at 90° to the cylinders, then located the huge expansion chamber over the resulting "V." The installation is remarkably compact.

Neodymium magnets on the flywheel dramatically cut weight (from 5.6 to 1.9 pounds) for a quick revving engine. A smaller starter also cuts weight. The DC-powered CD ignition system on this boat allows the magneto to be smaller because it uses battery power instead of drawing from the mag-



The mixed-flow pump is compact and efficient, and shimmed for tip clearance.

neto.

The new Ultra 150 mixed-flow jet pump turns 145 horsepower into 904 pounds of thrust. It is the first mixed-flow pump for Kawasaki since the JET SKI 550 SX and it works the same way. As water passes through the pump, it not only flows axially along the pump, but spreads radially outward. By taking advantage of the natural tendency of the water to spread outward under centrifugal force as it's being spun around by the impeller, the mixed flow pump is more efficient for its size than an axial flow pump. An oval leading edge impeller resists cavitation.

To keep the Good Times going as long as possible, the giant fuel tank holds 16.4 gallons of gas. The oil tank holds 1.2 gallons. The operator can

keep up to date on how things are going (and how fast they're going) by checking out the new digital meter system mounted on the dash. It includes a speedometer, tachometer, fuel level gauge and warning light, an engine oil level gauge and warning light, an engine temperature warning light, an hour meter, a clock, a low battery voltage warning light, and a slick nozzle trim indicator.

The new, deep-V hull is hand-laid fiberglass, reinforced with bulkheads. This design is lighter than a double hull, and allows the engine to be mounted lower in the hull to keep the center of gravity as low as possible. A Kawasaki Splash Deflector on the bow assures a drier ride and the recessed bow eye is a thoughtful detail. The

Cont'd on page 3

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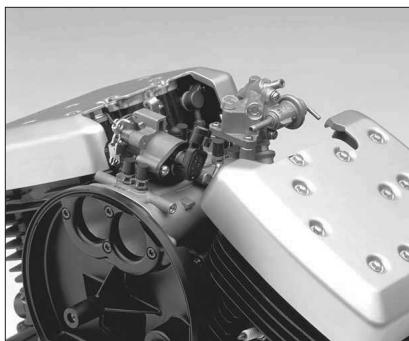
Specifications subject to change without notice.

1999 Vulcan™ 1500 Drifter

As you can see, styling is the Drifter's long suit, but high-tech has not been neglected. Digital fuel injection feeds the engine on a Kawasaki motorcycle in the U.S. market for the first time since the 1986 Voyager.

The new DFI system has two 36mm throttle plates, one controlling the input to each cylinder. In each intake tract, a single injector with four individual orifices squirts the fuel at the intake valves, two holes per valve. When the engine is under light loads (cruising at moderate speeds or idling), the injection system uses intake tract pressure and engine speed to calculate the amount of fuel needed. Under heavier loads, the system looks at the throttle opening and engine speed to figure fuel needs.

Horsepower is up from



Each cylinder has its own intake tract.



the Vulcan 1500 Classic and Nomad engines thanks to the fuel injection system, more compression, and "hotter" cam timing borrowed from the original Vulcan 1500. Fuel economy is better as well. Unlike earlier systems, the Drifter fuel injection has an automatic fast idle and cold start capability. Most riders may never need it, but the Drifter does have a starting knob for extreme conditions. The electrical system has a new 20 amp/hour battery and the Nomad's high output, dual alternator.

The new frame has extra-large diameter 42.7mm tubes, and a large diameter steering head pipe, with bigger steering bearings and gussets. The front fork offset splits the difference between the

Classic at 60mm and the Nomad at 5mm with a 25mm figure. It shares tire sizes with the Classic: a 130/90-16 on the front, and a 150/80-16 on the back. The rear fender is mounted on the swing-arm so it rides close to the rear tire and gives the Drifter a distinctive, low-slung look.

Layout-down air shocks with 4-way rebound damping give the Drifter more rear wheel travel than either the Classic or the Nomad. The rider's footboards are in the same place as on the Nomad, 65mm farther back than the Classic's, for a more upright riding position. Self-canceling turn signals add to rider convenience and a multi-plane reflector headlight with a clear lens has a bright beam and gives the front end a unique look.

Cont'd on page 16



**PISCATAWAY/
GRAND RAPIDS**

Put Them On Hold -- Lose the GOLD\$\$

Doing business in today's market requires us to spend our time wisely. To that end, I find more and more dealerships using automatic phone answering equipment with entertaining and informative messages.

In the course of doing my job, I call a lot of dealerships. As expected, I get put on hold quite often. This is not a problem until I have experienced the dealership's complete message answering theme and their plans for the next millennium!

How long have I been put on hold? Anywhere from ten minutes, to a half-hour, and there have been times when no one ever picked up. If I were a retail customer, I would be long gone and the dealership would lose the chance to sell me goods or services.

If your dealership likes to make money and aggressively seeks floor

traffic, you can't afford to leave your customers on hold for any great length of time. Put them on hold and you will lose the \$\$\$gold\$\$\$.

How long can you keep a customer on hold and not lose them? Not very long! Most recommendations I have seen are for 30 seconds to one minute. After that, store personnel should pick up and talk with the customer or offer to call them back. Make sure you call them back if you agree to do so.

With a busy fall selling season here, now is a good time to make sure your customer sales and service opportunities are not put on hold!

Fred DeHart

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Piscataway, NJ 08854
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ATLANTA/DALLAS

We Are Moving!

Kawasaki is proud to announce the relocation of our central region training center. We are moving to Tulsa Technology Center,

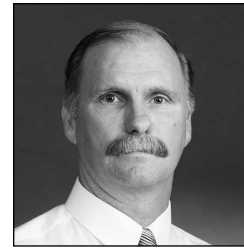


near Tulsa, Oklahoma from Cedar Valley Community College. Tulsa Technology Center will be our official Kawasaki Training Center for the central region. Starting in December 1998, all central region classes will be held on their southeast campus at 4600 South Olive in Broken Arrow, Okla. Since Tulsa is more centrally located in this region, it gives more dealers easier access to Kawasaki Technical Training.

Check out the 1998/99 training schedule already sent to your dealership for all classes including those at Tulsa Technology Center. To register for classes held at Tulsa Technology Center, contact Kawasaki's Fort Worth sales office at (817)-589-1180. We have a map and local hotel list available if you request them. See you there!

Walter Rainwater

*6110 Boat Rock Blvd. S.W.
Atlanta, GA 30378
(404) 349-2000*



IRVINE/TACOMA

Keep Up-to-Date

What helps a service manager or technician perform their day-to-day jobs better? Kawasaki's Service Update seminars, of course! November is only days away, the month that we hit the road to start the seminars. Because of the large turnout last year, we now visit 35 cities!

A Temporary Service Bulletin dated September 18, 1998, was sent to your dealership. It lists the cities and dates of the seminars. To simplify enrollment, there is now only one location to call for information and to register: the National Training Center in Irvine, Calif., at (949) 770-0400, ext. 2452.

Although the primary information given at the Service Update '99 seminar is service-related, we are often asked questions regarding a parts department problem or a sales-related issue. Kawasaki's instructors wear many hats; as an example of this, we taught the KIC

training last year and also teach service and parts department management classes. We teach ATV, motorcycle, Mule utility vehicle, and Jet Ski watercraft classes as well as attend many sales events such as Daytona Bike Week or Americade in service support.

The instructors wear other hats including managing special tools, developing training videos, Hotline support, contributing to informational booklets such as the Product Sales Guides and How We Stack Up, and service bulletins. I think we can help with your problem! If not, we will connect you with a specialist who can.

Service Update '99 will include new products such as the all-new Jet Ski® Ultra 150, Vulcan™ 1500 Drifter, motorcycle fuel injection, CVT systems, as well as all service department issues: bulletins, recalls, warranty, in-field product problems, and of course, addressing your specific problems. Plan to be there and sign up early as many of the locations have capacity limits!◆

Rob Taylor
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Irvine, CA 92618
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Motorcycle Service Technology Contest

VICA Skill Olympics in Kansas City

by Ray St. John
Supervisor, Technical
Writing

Kansas City, Missouri. Late June 1998. The weather is hot and muggy. More than 2,000 high school and post-secondary students from industrial and vocational/technical programs around the country have come together to test their skills against their peers. They are all members of the Vocational Industrial Clubs of America, VICA, and each has won the state contest in his or her home state. Who among them will be the best carpenter, bricklayer, bakery chef, hairdresser, diesel mechanic, draftsman? And Kawasaki Motors Corp., U.S.A., is here to help run the Motorcycle Service Technology



Contestant ponders the inner workings of a Vulcan™ 500 LTD fork. He got it right.



VICA judges from KMC and Intertech Publishing.

Contest, along with Honda, Yamaha, Motorcycle Mechanics Institute, Snap-On Tools, and the Motorcycle Industry Council.

Twenty-seven students are here, too, from all over the U.S., and each is ready to prove that he or she is the best student motorcycle mechanic for 1998. They must finish a three-hour written exam and go through six half-hour, hands-on, work stations during the course of one, grueling day. At nine o'clock sharp the day begins. Some of the students remain in their seats and start on the written exam, twenty-four others begin the work stations: hydraulic fork service, parts identification, electrical troubleshooting, crankshaft bearing service, ignition troubleshooting, and

clutch inspection. Every half-hour during the day, the students move to another station or return to the written exam.

At the end of the day, everyone is tired. All the contestants have done their best. And even though only six will take home the honors, each and every one of these students has demonstrated the kind of skill and determination that it takes to compete at the national level.

Congratulations to all the contestants from Kawasaki Motors Corp., U.S.A.◆

High School Level Winners:

First Place: Joshua Kurtz, Pa.
Second Place: Andrew Mehren, Calif.
Third Place: Brandon Johnson, N.D.

Post Secondary Winners:

First Place: Ned Wilson, Minn.
Second Place: Tracin Seng, Neb.
Third Place: Darwyn Shaw, Texas

Welcome!

New Hotline Technician



It's time we got around to introducing Alex Dell, the newest member of our Kawasaki Technical Hotline staff. By now many of you have already spoken to him on the phone. He started working here in April of

this year and has been answering the phones through the busy season. Or you may have met him at the Dealer Meeting in Nashville.

If you have spoken to him, you no doubt noticed his English accent.

Alex was born and raised in England and started his career in the motorcycle industry by working in dealerships near London. He started in the parts department and then moved to the service department as a technician. Alex was able to attend many Kawasaki Training classes because he conveniently lived and worked very near the KMUK (Kawasaki Motors United Kingdom) facility.

Before long, Alex had his foot in the door at KMUK, working as their technician preparing the

press test machines. After doing that for several years, he progressed to Hotline Technician, and then Road Race Technician. On the race team he wrenched on the Superbikes that competed in England's National Championship series as well as in selected World Superbike events. After his road racing stint Alex became a Senior R&D Engineer. By the time he left England to start a new life in the U.S., Alex had worked at KMUK for fifteen years.

In America Alex settled in the Monterey, California area. He worked as a technician at a couple of local dealerships from 1992 until April of this year, when he came to Southern California to work on the Hotline at KMC.

Alex has some interests outside the motorcycle industry, which include flying RC airplanes and helicopters. Recently he has taken up paragliding, a sort of cross between hang-gliding and parachuting.

We have no doubt that his years of experience at KMUK as well as in dealerships will make Alex Dell a valuable addition to our Hotline staff.—Ed.◆

New KAPS Training Video

by Dave Corey
Writer/Producer

A new video in the K-TECH training series is now available. *Kawasaki Automatic Power-Drive Systems* covers the topics you need to get up to speed on this increasingly popular drive system, the continuously variable transmission or CVT. The video includes CVT construction, theory of operation, maintenance, service and troubleshooting as well as high altitude tuning information.

The tape is aimed at technicians of all skill levels. The video takes you step-by-step through the process of disassembly and reassembly of the CVTs used in Mules and ATVs. After viewing the video and accompanying reference manual, you will be able to perform basic maintenance, make adjustments, recognize common symptoms, and recommend repair procedures for every type of CVT used in Kawasaki ATV and utility vehicles.

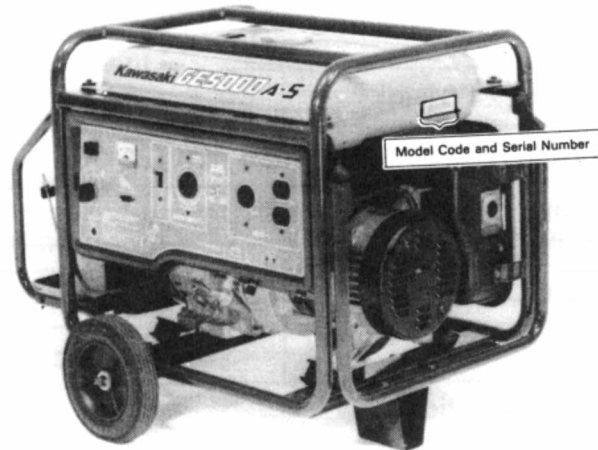
If your dealership is a member of the Tech Training Video Club you already received this video at the club price of \$25.00 plus shipping, handling, and sales tax. Regular price is \$36.95 (plus the usual S & H & tax), but you can join the club and get the tape at the club price by calling Kawasaki Technical Services at (714) 770-0400, ext. 2472.◆

Generators Have Model Codes, Too!

by David Behlings
Parts Data Coordinator

You are very familiar with Kawasaki model codes; you use them when looking for parts or service information for a specific model. For example, how could you find parts for a NINJA™ ZX-9R (model name) without using the model code to narrow your search from six model years to one? (The ZX-9R has been produced from 1994 through 1999.)

Until recently, Kawasaki provided generator parts information by model name. But it has become necessary to use product codes. Even though generators don't have model years, they do change periodically, similar to Mules™. So, to make sure you order the right parts, look for the sticker on the fuel tank above the exhaust outlet showing the complete model code.◆



Here is how you can make sense out of the codes:

- The first two letters are the same for name and code.
- The third letter represents a number (indicating the size of the generator) as shown:

T	=	1 (1000)
W	=	2 (2000)
H	=	3 (3000)
R	=	4 (4000)
F	=	5 (5000)
- The eighth character changes according to the generator specification: A, B, C, D, E, etc. This character is the key to finding the right parts catalog for a specific generator.
- The last three characters (S00 and S01 above) indicate that these generators are for the U.S. market. V25 and V26, for example, are for Canada.

So far, we only have code information for these GA and GE series generators.

<u>Model Name</u>	<u>Product Code</u>
GA1000-A	GAT00A-AS00
GA1400-A	GAT40A-AS00
GE2200-A	GEW20A-AS01
GE2900-A	GEW90A-AS01
GE4300-A	GER30A-AS01
GE5000-A	GEF00A-AS00



Akashi Kaikyo Bridge in Kobe Japan.

Did You Know?

by Gregg Thompson
Product Support Supervisor

All Kawasaki products are designed under the final authority of Kawasaki Heavy Industries, LTD (KHI) in Japan. KHI is one of the largest corporations in the world. Besides motorcycles and other consumer products, KHI designs and manufactures a wide variety of products, including heavy construction equipment, industrial robots, hydraulic motors, subway cars, bullet trains, jet engines, passenger aircraft, helicopters, large high-speed hydrofoil-type



KHI just finished working on the largest single span suspension bridge in the world.

watercraft, submarines, supertankers, bridges and much more.

Speaking of bridges, Kawasaki just finished working on the largest single span suspension bridge in the world. The recently completed Akashi Kaikyo Bridge in Kobe, Japan, spans a busy

international shipping route, which accommodates up to 1400 ocean-going ships a day. KHI was one of the main contractors on one of the two vertical towers and both of the caissons on which the towers stand.

The towers, which reach nearly 1000 feet

above the water, were built to vary from true vertical by less than 1/5000th of one degree. For you technicians and specification buffs, that means the towers are off to one side or the other of a perfect vertical line from the base by no more than .040 inch (or 1mm) at the very top! Each tower weighs over 24,000 tons, making them some of the largest structures ever built in water. Each tower also supports an additional weight of 120,000 tons.

Here are some other interesting statistics. The caissons that support the towers are over 250 feet in diameter and nearly 200 feet tall (mostly under water) making each one almost the size of a football stadium. To support the caissons 700,000 tons of concrete was poured at the base of each one. And all this was built in water that's about 150 ft deep and always moving one direction or the other because of the tide!

The center span of this 2-1/2 mile bridge is over 6,500 feet long (or almost 1 1/4 miles). By comparison, the central span of the famous Golden Gate Bridge in San Francisco is 4,200 ft long. ♦

Orlando '98 Latin Technical Seminar

by Carlos Johnston
Service Support Coordinator,
Latin America

In June, Kawasaki Motors Corp., U.S.A., offered its second annual Technical Seminar for Latin American Distributors in Orlando, Fla. This two-week-long seminar was taught in Spanish and was open to distributors or dealers in Latin America. We had 13 students with various experience levels from Colombia, Paraguay, Bolivia, Puerto Rico and Guatemala.

The Motorcycle Mechanics Institute (MMI) provided a large classroom and fully equipped lab. The course covered an overview of the technology used in all Kawasaki product lines. There was a lot of information and the students were able to set the pace, spending more time on issues of particular interest. Plenty of hands-on time allowed students to work on engine assemblies, complete motorcycles and watercraft.

Thanks go to Mr. Javier Botero from Auteco in Colombia who volunteered as a co-teacher. His experience as a technical



Second annual Technical Seminar for Latin American Distributors in Orlando, Florida.

instructor in Colombia and knowledge of the "local market" was very helpful. I would also like to thank the staff of MMI for their support and commitment to this project.

Next year we plan to do even bigger and better things. Some students requested more specialized training so we may offer professional-and master-level courses for entry-and master-level technicians. ♦

Are You Ready?

The Kawasaki Service Contest Is Back!

Enclosed is the first of three quizzes making up this training season's Service Contest. Do you remember the Service Contest which ran in the Fall '94, Winter '94, and Spring '95 *K-Tech News* issues? Well, this contest is very similar. Here are the details:

This issue of *K-Tech News* brings you the quiz for ATVs and Mule™ utility vehicles. The Winter '98 issue will contain the motorcycle quiz, and the Spring '99 issue will wind up the contest with the Jet Ski® watercraft quiz.

- Each quiz has 50 questions.
- The contestant with the highest score total for the three quizzes will win the grand award. In case of a tie, there will be a run-off.
- In order to compete for the grand award, all three tests must be completed and returned.
- Make copies of the quiz for each person desiring to enter the contest. Anyone in the dealership may compete, however, each contestant must work individually. Faxing the answer sheet is accepted.
- Any contestant who scores 86% or higher will win an award for that quiz.
- Contestants may use any materials and information to answer the questions. In fact, that is the purpose of this contest - to encourage Kawasaki dealership employees to become familiar with Kawasaki products and support materials.
- A quiz will be mailed with each of the next two issues of *K-Tech News*. Winning contestants will be announced in the next issue of *K-Tech News*.
- The deadline for the quiz and where to send it are printed on the quiz.

Best of luck. ♦

LOOK FOR
THE QUIZ IN
THIS ISSUE!

Tool Corner

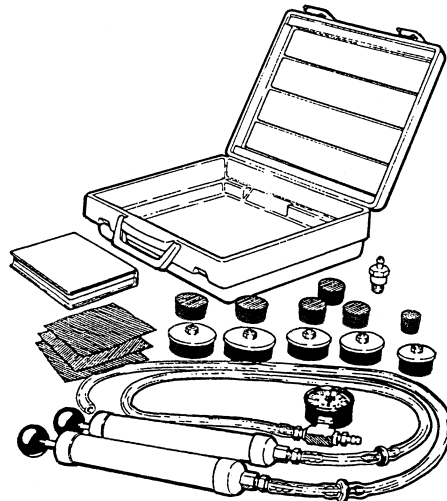
by Rob Taylor
Supervisor, Curriculum
Development

New Two-Stroke Engine Pressure Tester Now Available

The long awaited two-stroke pressure/vacuum engine tester (PN T57001-295) is now in stock. This kit comes with everything needed to perform a pressure test on Kawasaki two-stroke engines. The hand pumps, one vacuum and one pressure, are very

durable and resist most commonly used chemicals. To ease operation, a check valve in-line with the pump holds pressure during operation. Solid and expansion-type plugs are included. The good news is that all parts can be purchased separately

and a complete parts list is included in the kit. Also available from Kawasaki is a *Back To The Basics* training video titled *Two-Stroke Engine Pressure Testing*. This video comes with a nice manual to assist in learning how to use this important diag-



nostic tool. If you want to order this training video, call (949) 770-0400, ext. 2463.

New KX Tools

The KX125-L1 and KX250-L1 have a few new tools. The throttle Sensor Adapter, PN 57001-1414, is required to test the throttle sensor and the Fork Cylinder Holder, PN 57001-1413, is required to disassemble the front fork. The service manual also refers to a peak volt meter to check the ignition coil, pickup coil, and exciter coil output. KMC does not carry this tool but it can be purchased through Kowa Seiki, (800) 824-9655 or K&L Supply Company, (800) 727-6767. ♦

900STX Carburetor Adjustment

by Gregg Thompson
Product Support Supervisor

It recently came to our attention that the JT900-A1,2 (STX) service manual lists the wrong specification for the low speed mixture screw setting. The book says 7/8 turn out, plus or minus 1/4 turn. You may have problems if you adjust one to that spec. The correct specification is 2 turns out plus or minus 1/4 turn. Be sure to make a note

Mixture Screw	Turns out
Low Speed (lower)[B]	2 7/8 ± 1/4
High Speed (upper)[C]	1 ± 1/4

in your shop service manual. The spec is listed on pages 2-4 and 2-11.

If you have trouble eliminating an off-idle hesitation by adjusting the low speed mixture screw, try replacing the stock #80 pilot jet with a #82 (PN 16158-3714). With the larger pilot jet installed, you can lean out the low speed screw to about 1 1/4 turns. ♦

Incorrect ZX900-C1 Service Manual Tool Listing

The ZX900-C1 service manual (PN 99924-1225-01) incorrectly directs you to use an Igniter Checker Assembly (57001-1378) to check the igniter. Use a hand tester (PN 57001-1394) to perform the required tests. ♦

Nomad Saddlebag Shims

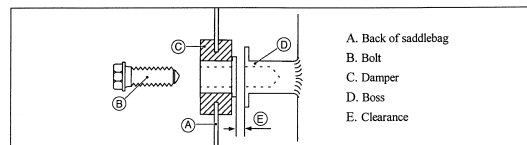
by Ray St. John
Supervisor, Technical Writing

During saddlebag installation on the Vulcan™ 1500 Nomad™, you may need to shim one of the mounting bolts to prevent the saddlebag from being distorted when you tighten the bolts. If the saddlebag is distorted, the cover may not open and close smoothly, or shut and

latch securely. The idea is to mount the saddlebag so that both bosses on the top bracket fit snugly against the back of the saddlebag, without bending the bag to fit.

The shims are standard parts, and should appear in the parts catalog by the time you read this.

To check if the bags fit to the frame, first close and latch the lid. Now fit the protrusions on the bottom of the saddlebag down into the rubber dampers in the bottom bracket, and the hook on the back of the saddlebag into the catch on the top bracket. At this point, the bag is free to move on the



mounts. Now, lightly press the bag against the top bracket. If both bosses touch the back of the bag *without bending or distorting the bag to fit*, go ahead and finish mounting the bag. Insert the bolts and tighten them securely.

If only one of the mounting bosses touches the bag while leaving a gap at the other boss, the clearance must be measured. Install a mounting bolt through the bag into the boss that is touching and tighten the bolt. Close and latch the lid, and without pushing on the bag, measure the gap at the other mounting boss.

If the clearance is less than 1.0mm, go ahead and install and tighten the second bolt. If the clearance is 1.0mm or more, insert shims to take up the clearance. The shims are 1.6mm thick, so the gap must be 2.6mm or more to require two shims. Once you have the clearance down to less than 1.0mm, install and tighten the second bolt.

After installing the saddlebag, open and close the lid several times to check for smooth operation. Be sure it latches and locks securely. If it does not work properly, remove the mounting bolts and recheck the clearance.◆

Part Number	Description	Quantity
92022-1317	Shim	As Required

Note: In the A&P sheet, this shim is called "Flat Washer, Bag."

Reprint: KE100 Front Forks

We still get calls every now and then from dealers who can't figure out how to get the front forks apart on a B model KE100. The service manual still describes the procedure for disassembling the old style forks. So we decided to reprint an article which was first published in the Fall 1992 issue of *K-Tech News*. It might be a good idea to make a copy of it and slip it into the suspension disassembly pages of your service manual.◆—Ed.

KE100-B Fork Seals

If a customer comes in with a leaking fork seal on his KE100-B, do you know how to change it? After you get the bike on your lift and the fork tube off and in your hands in record time, the big question comes up: What holds this thing together? There is no damping rod bolt at the bottom to take out and no tension rod at the top.

What is holding it together is a bushing, seal, and snap ring. That's all. Remove the top cap and spring, and drain the oil. Slide the dust boot off the stanchion tube and remove the snap ring and washer that are



on top of the seal. Now, clamp the slider in your vise (with soft jaws) at the axle boss and slide-hammer it apart. Pull the stanchion tube up hard against the bushing several times until it knocks the bushing and seal out the top of the slider.

Before installing the bushing and new seal, check the snap ring groove for burrs. If needed, de-burr it with a three corner file.—John Pomo◆

No High Beams on Your New Prairie®?

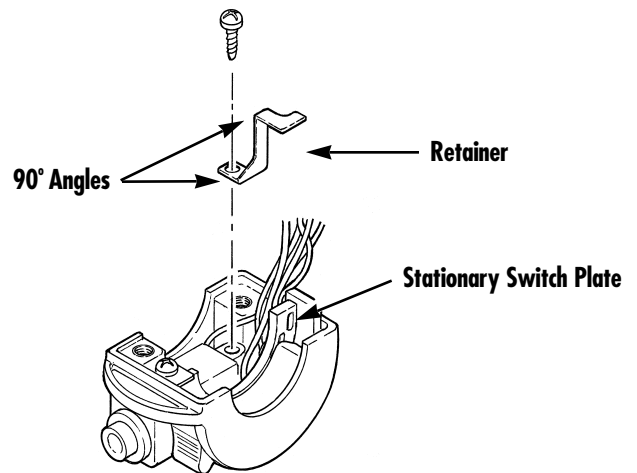
by Keith Pestotnik
Senior Product Quality
Engineer

We have seen some cases of inoperative high beams on 1999 Prairie® ATVs, including KVF300A/B and KVF400C/D models.

The cause has been inside the left hand handlebar switch. Both the 300 and 400 share the same switch assembly, P/N 46091-1726.

It may be easier (and quicker) to repair rather than replace the faulty switch. Try this:

- 1) Remove the 2 switch case screws.
- 2) Open the case and inspect the stationary headlight switch contact plate. It's the black one with 5 red wires soldered to it. The contact plate may be rotated out of its proper position, preventing the sliding switch plate from reaching the high beam contact. If the stationary contact plate has rotated, its (gold-colored) retainer will be bent out of position too.
- 3) Bend the retainer back to its correct shape: straight with 90° angles at each end. You may have to remove this retainer to straighten it. The reshaped retainer will cause the switch contact plate to rotate back where it belongs.
- 4) Untwist the wire bundle that goes to the upper switch case before reinstalling the retainer. This will provide more slack in the wires to prevent bending the retainer again.
- 5) Install the switch assembly back onto the handlebars. Be careful not to pinch the untwisted wires! Test the headlights. ♦



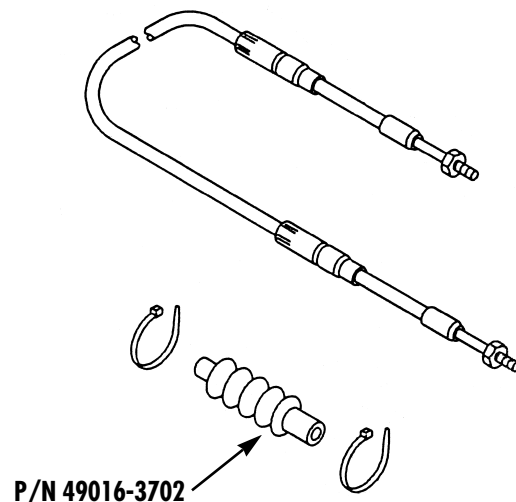
New Trim Cable for JH750-B2, B3

by Gregg Thompson
Product Support Supervisor

The Electric Trim Cable for the 1994 and 1995 Super Sport Xi (JH750-B1,B2) watercraft has been substituted to a new part number 59046-3751. This cable was originally designed for the 1996 JH750-F1, which came with an accordion style boot at the rear end of the cable to keep water

out. The boot is not supplied with the cable.

The earlier JH750-B1 and B2 models didn't have this style boot on the cable. When you install one of these newer style cables on a "B" model watercraft, you must also install the boot (P/N 49016-3702) with two tie wraps (P/N 92037-1173) to keep water from entering the trim system. ♦



KDX200 Service Manual Glitch

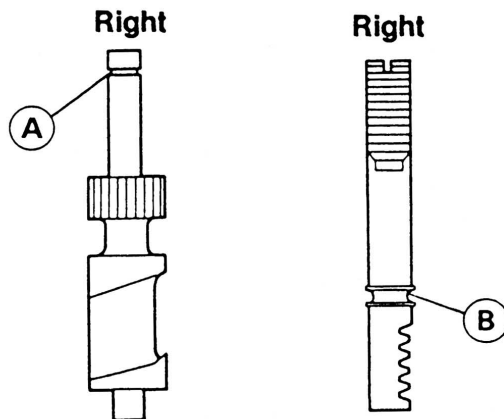
by Ray St. John

Supervisor, Technical Writing

On page 4-12 of the KDX200H Service Manual (P/N 99924-1181-01 and -02), the bottom illustration and the **CAUTION** beside it are mislabeled.

The illustration shows the right-hand sub-valve and right-hand exhaust rod for the KIPS. But the sub-valve is called "Left," instead of "Right." The **CAUTION** says, "The left sub-valve has a groove [A]," but it is really the right sub-valve that has the groove. **The left sub-valve is plain.**

This error has existed since the manual came out years ago, and has caused some confusion. We hope this clears it up. ♦



1999 KX125, KX250 Jetting Help

by Craig Martin,
Technical Support
Technician

Under certain track conditions and rider techniques, some customers have been experiencing significant midrange throttle hesitations on both the 1999 KX125-L1 and KX250-L1. The

problem is a rich condition which occurs only at a certain throttle opening (less than full throttle) and a certain rpm in the mid range. Some complicated carburetor characteristics are contributing to this problem making it very difficult to correct.

We have come up with some recommended jetting changes which should help if you run into this problem.

For the KX125-L1 use the N7NW Jet Needle (P/N 16187-1084) in the 3rd clip position.

For the KX250-L1 use the N3WK Jet Needle (P/N 16187-1079) in the 3rd clip position and a # 58 Power Jet (P/N 16159-1056).

Some additional Power Jets (for the 1998 and 1999 KX125s and KX250s) have just been made available.

The power jets now available are:

#48.....16159-1058
#50.....16159-1053
#52.....16159-1055
#55.....16159-1054
#58.....16159-1056
#60.....16159-1057 ♦

Dirty Carburetor? Check That Fuel Tap Filter

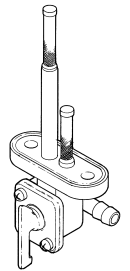
by Keith Pestotnik

Lead Engineer Quality Assurance

Whenever abnormal debris such as bits of plastic, rubber, metal or dirt are found inside a carburetor, repair should include both cleaning the carburetor and inspecting the fuel tap filters.

These plastic screen filters, attached to the fuel tap inside the tank, are usually trouble-free. But recently we have

heard some reports of fuel tap filter separation—the filter falls out of the fuel tap body and is found bouncing around inside the fuel tank. Of



course, with this filter separated from the fuel tap, any debris resting at the bottom of the fuel tank can funnel freely into the carburetor because the fuel tap is at the lowest part of the fuel tank.

The micron capacity of the fuel tap filters is designed to stop all but the very smallest particles without inhibiting normal fuel flow. These very small particles can be drained periodically by opening the float bowl drain screw. Larger, easier-to-see particles (the ones that can cause problems in the carburetor) are supposed to remain inside the fuel tank. If you see them in the carburetor float bowl, remember to remove the fuel tap and inspect the filters. ♦

Engine Compression

by Gregg Thompson, Product Support Supervisor and Charles Yim, Product Quality Engineer

One of the most basic diagnostic tools for a service technician is the compression test. Any time you are diagnosing an engine for hard starting, poor idling, poor throttle response or low power as well as excessive oil consumption and smoking, one of the first things you should do is a compression test.

When doing a compression test, always refer to the specification in the service manual and expect that a good running engine will be within 15% of the HIGH end of the spec. The low end of the compression spec given in Kawasaki service manuals is usually very low—so low that an engine will almost certainly have severe starting and/or running problems if cranking pressures are near that end of the spec.

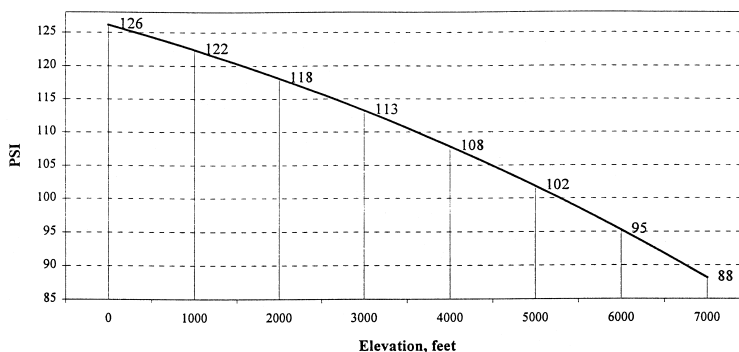
Be aware that the cranking pressures of an engine will go down significantly at higher altitudes. At 5000-6000 feet

cranking pressures will be about 20% below what they are at sea level. This can have negative affects on starting, idling and throttle response. This is especially true with low compression engines such as many of our 2-stroke

releases, a leak-down test is a much better way to determine engine condition. A leak-down test is more time consuming and requires different equipment, but in 4-stroke engines it does provide information that the basic

compression test does not. Your shop should be equipped to do compression and leak-down tests, and you should perform these tests frequently to help diagnose engine starting or running problems. ♦

1998 JH/JT1100
Compression, psi



watercraft engines. This table shows the changes in cranking pressures at higher altitudes for our 1100cc watercraft engines.

Many of our 4-stroke engines have automatic compression releases (KACR) which bleed off compression pressure at cranking speeds. With these models it is difficult to diagnose compression-related problems with a simple compression test. The amount of pressure bled off by the KACR varies quite a bit between engines, so it's hard to tell if you might have a modest compression loss due to a problem in the engine. In engines with automatic compression

Kawasaki Portable Generator Warranty

In the past, all Kawasaki Portable Generators were sold with a 12-month warranty. As of January 1, 1998, the policy was changed to allow different lengths of warranty depending on the usage of the generator. The new warranty terms are as follows:

- Kawasaki Generators sold for RETAIL (Personal) use24 months
- Kawasaki Generators sold for COMMERCIAL use12 months
- Kawasaki Generators sold for RENTAL use6 months

The warranty periods for Power Partner Generators remain unchanged. They are as follows:

- Power Partner Generators sold for RETAIL (Personal) use.....24 months
- Power Partner Generators sold for COMMERCIAL use90 days
- Power Partner Generators sold for RENTAL use.....90 days

The Kawasaki Warranty Department will soon be issuing a new Warranty Certificate for Kawasaki Portable Generators, but don't forget the new warranty terms have been in effect since the first of the year.—Ed. ♦

Original Equipment Parts Kits Available

Kawasaki offers a variety of parts kits including Gasket Kits, Top End Repair Kits and Chain Kits. These kits (especially the gasket kits) can save you lots of time looking up part numbers for big engine jobs. They will also save your customers money because these kits are discount priced.

The gasket kits include all applicable gaskets, seals and o-rings including valve guide seals in the Top End and Complete Engine kits. The Top End Gasket kits include everything from the base gasket up. The Bottom End Gasket kits include

everything below the base gasket.

The Top End Repair kits (for KX bikes only) include parts needed for multiple maintenance intervals. Each kit includes a piston, wrist pin, bearing, and circlips, two sets of rings, 3 head gaskets and 2 each of the other top end gaskets.

The Chain kits include the front and rear sprockets and the chain. They do not include replacement lock washers or tabs so be sure to order separately any lock washers you will need for the job.

Here is a list of the kits currently available. ♦—Ed.

Part Number Model Application

*Complete Engine Gasket Kits

9995-1393	.....VN1500-D1/D2
9995-1396	.....ZX1100-D1 thru F2
9995-1399	.....KX250-K1/K2/K3/K4/K5

*Top End Gasket Kits

9996-1245	.....ZX1000-A1/A2/A3
9996-1248	.....ZX900-A1 thru A10
9996-1251	.....EN, EX500-A1 thru F3
9996-1255	.....ZX750-L1/L2/L3
9996-1262	.....KZ, ZN1300-A1 thru A6
9996-1276	.....ZX900-C1/C2

*Bottom End Gasket Kits

9996-1246	.....ZN900, ZX1000-A1 thru B3
9996-1252	.....EN, ER, EX500-A1 thru F3
9996-1254	.....ZX900-B1/B2, B3, B4
9996-1263	.....KZ, ZG, ZN1300-A1 thru A6
9996-1277	.....ZX900-C1/C2

Top End Repair Kits

9996-1234	.....KX60-B1-B14
9996-1238	.....KX80-W1/W2
9996-1239	.....KX125-K5
9996-1240	.....KX250-K5
9996-1281	.....KX125-L1

Chain Kits

9996-1202	.....KX125-K4
9996-1203	.....KX250-K4
9996-1207	.....EN500-C1-C4
9996-1212	.....ZX600-E2-E7
9996-1214	.....ZX750-L1-L3
9996-1216	.....VN800-B2/B4
9996-1218	.....ZX900-B3/B4
9996-1219	.....ZX1100-D3-D7

Part Number Model Application

9995-1394	.....VN800-A1 thru B4
9995-1397	.....ZX600-F1/F2/F3

9996-1247	.....ZX1000-B1/B2/B3
9996-1249	.....ZX600-A1 thru C10
9996-1253	.....ZX900-B1/B2/B3/B4
9996-1257	.....ZX750-P1/P2/P3/P4
9996-1274	.....ZX600-G1/G2

9996-1250	.....ZX600-A1 thru C10
9996-1254	.....ZX900-B1/B2/B3/B4
9996-1258	.....ZX750-P1/P2/P3/P4
9996-1275	.....ZX600-G1/G2

9996-1235	.....KX80-R6/R7
9996-1236	.....KX125-K4
9996-1237	.....KX250-K4
9996-1282	.....KX250-L1
9996-1283	.....KX60-B15

9996-1226	.....KX125-K5
9996-1227	.....KX250-K5
9996-1209	.....EX500-D1-D2/E1-E4/F1-F4
9996-1213	.....ZX600-F1-F3
9996-1215	.....ZX750-P1/P4
9996-1217	.....ZX900-B1/B2
9996-1219	.....ZX1100-D3-D7
9996-1222	.....ZX1100-E1-E3/F1/F2

*Only gasket kits are display packaged.

'99 KX125-L1 and KX250-L1 Front Axle Installation



To ensure minimal fork stiction and keep the wheel from being loose on the axle special assembly is required. Insert the axle and torque the axle nut and then the axle clamp bolts in the left hand fork leg. Then pry open the jaw of the right axle clamp and stroke the fork, allowing the fork legs to center themselves. Now torque the axle clamp bolts in the right hand fork leg. ♦

KX, KDX, KLX Front Axle Mount Studs

The 6mm studs that thread into the fork legs to secure the front axle are not listed separately on the microfiche but are available. The studs fit the KX 125/250/500 models as far back as 1982, the KDX 200/220R models, and the KLX250/300R models. The Kawasaki part number for these 6 x 20mm studs is

172G0620. ♦—John Griffin

New Models - *Cont'd from page 3*

ZRX1100

The naked, big bore muscle bike is back. The ZRX1100 engine is based on the ZX-11 motor, but tuned for torque. Around town, and at anything less than all-out racing speeds, what drives the bike is torque, and the more the better.

The ZRX motor has everything it needs to make a lot of torque at low engine speeds. The cam timing is milder, and valve lift is a little less. The carburetors are downsized to 36mm, and the exhaust pipe diameter is reduced. The compression ratio is down slightly, to 10.1:1 for smoother low-rpm running. The crankshaft flywheel effect is up 14% so the engine feels even torquier off the line.

Internally, the engine has been simplified. The sump is changed to eliminate the second oil drain plug, so oil changes are easier. The oil cooler and its oil pressure relief valve are gone to cut weight. A simple notch in the balancer chamber wall now allows the oil to drain back into the main part of the sump. The engine has been dressed up, too, with polished fins on the ends of the cylinder head, and



The modern muscle bike is alive and well.

on the crankcase end covers.

The digital ignition system incorporates K-TRIC, Kawasaki Throttle Responsive Ignition Control. The ignition computer looks at engine load, deduced from throttle position, as well as engine rpm to determine the optimum spark timing.

The frame is a tubular, high tensile steel, double cradle, backbone design. It is simple and effective, and has a removable aluminum right-hand downtube to ease engine servicing. The swingarm is tubular aluminum with eccentric chain adjusters (that practically guarantee proper wheel alignment)

and has a sturdy bridge under the main beams, for extra rigidity.

The short 57.1-inch wheelbase, 4.1 inches of trail and a fairly steep 25° steering head angle give the bike the feel of a 750-class machine. The 31.1-inch seat height and rubber mounted tube-type handlebars with end weights add to rider comfort.

The cartridge forks are 43mm conventional-type, with 12-way compression and rebound damping, and screw-type preload adjusters. The inner fork tubes are 2.5mm thick. The rear shocks are trick units with alumite-treated, external piggy-back reservoirs, 4-way

compression and rebound damping, and 5-way spring preload adjusters.

This machine has excellent brakes, with 310mm diameter, 5mm thick dual discs up front, clamped by opposed 6-piston Tokico calipers. The 250mm rear disc has an opposed 2-piston caliper.

The wheels are three-spoke, cast aluminum, 17-inchers, with a 3.50-inch rim up front and a 5.0-inch rim in the back. The front tire is a 120/70 ZR-17; the rear is a 170/60 ZR17. ♦

So What Else is New?

On the waterfront, the three-person JET SKI® 900 STX gets the hull from the 1100 STX, a set of constant velocity carbs, and a digital DC-CDI system. The result is a beautiful handling boat that's smooth and fast, and more affordable in a competitive market.

The 900 STX does not have its big brother's retractable boarding step, but it has the hardware in the transom so it can easily be bolted on. The digital meter system from the flagship is also carried over to the 900. Of course, the bigger hull means the fuel and oil tanks are bigger as well.

On the road, the Vulcan™ 1500 Classic gets the Nomad's high output alternator and self-canceling turn signals, and California models have catalytic converters in the exhaust system. It also has more comfortable suspension settings, the Nomad's wider hand levers, and larger radiator with 30% more cooling capacity. All the Vulcan 1500s (except the "A" model) have a new right side crankcase and engine cover that move the oil filler and oil level window to more convenient locations. ♦