

- ◆ Extra-wide hull with two-up seating and ample storage
- ◆ Large fuel tank and high-capacity bilge system
- ◆ Newly designed fine-tuned exhaust
- ◆ Superlube oil injection and water-proof CD ignition
- ◆ Proven 635cc engine with axial-flow, single-stage jet pump output

Kawasaki JF650-TS...

The Latest Wonder of The Sea!

by Tim Bean, Program Developer

JUST WHEN THE COMPETITION THOUGHT it was safe to go back into the water, Kawasaki unveiled the JF650-B1 TS, its new-for-'89 two-seat personal watercraft. Even with two aboard, the "Tandem Sport" is no performance featherweight: Its proven 635cc engine puts out 52 horsepower and boasts 463 pounds of thrust from its jet pump propulsion system. The TS also features a huge 6.3-gallon fuel tank (including 1.1 -gallon reserve).

All this inside a stylish new extra-wide hull delivers the unusual combination of comfortable two-up riding and sensational sporting performance.

The competition should probably slip back out of the water . . .



JF650-B1 SPECIFICATIONS

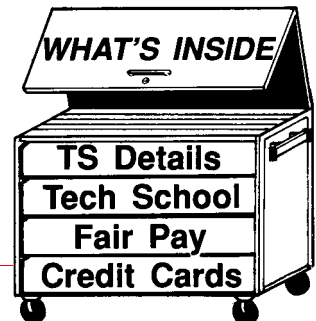
Displacement	635 cc
Bore & Stroke	76.0 x 70.0 mm
Compression Ratio	7.2:1
Maximum Horsepower	52 @ 6000rpm
Carburetor	BN34 Diaphragm Type
Maximum Thrust	463 lb.
Overall Length	109.4 in.
Overall Width 42.1	in.
Overall Height	38.2 in.
Draft	7.0 in.
Dry Weight	415 lb.
Minimum Turning Radius	8.9 ft.

SERVICE TIPS WINNERS

ALL KAWASAKI TECHNICIANS are winners when they participate by sending tips to *K-TECH NEWS*. And we received some great service tips from those of you who entered our "Service Tip Contest!"

... So great that it was a real challenge to select the winners and especially hard to decide which tips to publish in this issue. But, the judges have finally decided.

Thanks to everyone who participated and congratulations to the winners. Don't miss the winning service tips on Page 9 of this issue.



ROUTE LIST



SERVICE



PARTS



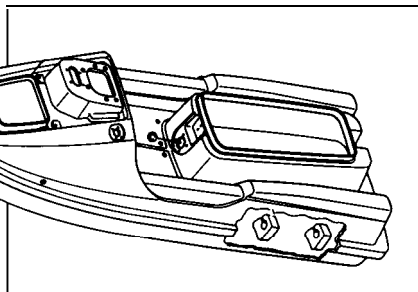
SALES

SHOP TALK/TECHNICAL

The JF650-B1 "TS" Tandem Sport

by Ken Ploeser, Technical Services

THE TS IS THE LATEST addition to the Kawasaki JET SKI® watercraft family. Servicing the TS is a breeze when you know the details. Read on and pick up some information on a few of its features as well as some time saving tips.



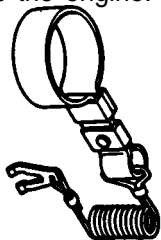
New Hull Design

THE HULL IS MADE OF SMC with foam injected into the hull cavities to provide flotation and added strength. Blocks of preformed foam inserts provide additional flotation.

Hull repair procedures are available on video tape. See Training Bulletin #TR89-01 for details.

Lanyard Key Shut-Off

"WHY THE LANYARD CORD?" you ask. The TS does not self-right like smaller JET SKI® watercraft. If the rider somehow capsizes the TS, the lanyard stops the engine. Without it, water entering the engine compartment through the intake vents could be ingested by the still-running engine.



The owner's manual states: "Without the lanyard key pushed under the stop button, the engine cranks but will not start." Don't forget this new feature; several reports of "mysterious starting problems" have already been called in to the Hot Line . . .

The lanyard key is available as a separate spare part, P/N 92072-3734. You may want to have an extra one handy.

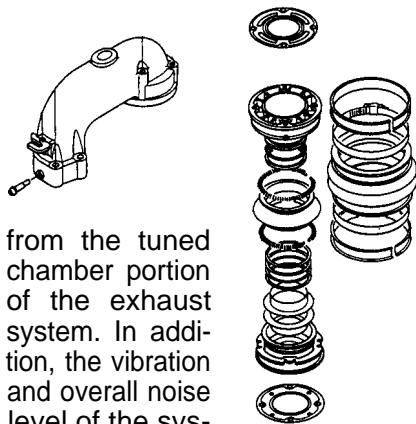
Fuel Priming Pump

TO MAKE INITIAL START-UP quicker and easier, and thereby reduce starter wear and excessive drain on the battery, a fuel priming bulb (P/N 49043-3702) is provided. It is located in the fuel supply line, and both carburetor and fuel pump can be primed with a few squeezes prior to start-up.

The pumping action draws fuel up from the fuel tank through the fuel pick-up filter, past the fuel tap and into the primer bulb, then through the sediment bowl into the fuel pump. Thus the entire fuel system can be filled before one attempts to start the engine. This also eliminates the need to remove any hoses, spill fuel or over-pressurize any part of the fuel system during set-up or servicing.

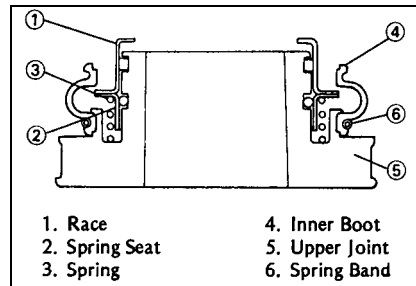
Exhaust System

WHEN YOU OPEN THE TS hood you will notice a large rubber coupling between the exhaust pipe "elbow" and the muffler. This design completely removes water



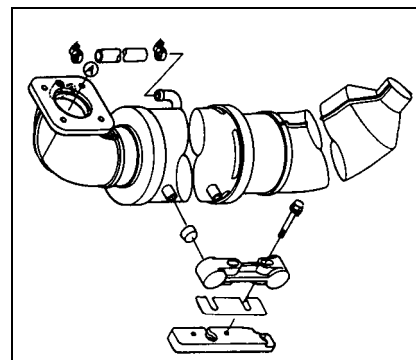
from the tuned chamber portion of the exhaust system. In addition, the vibration and overall noise level of the system are reduced. The new exhaust manifold and elbow are cast aluminum and water jacketed in the same way as Kawasaki's other watercraft. The unique part is the way water is routed around and through this new coupler. Inside the boot is a series of collars, sealing rings and springs which isolate the cooling water flow from the ex-

haust gas. Also new is the way the cooling water flows from the new coupler to a special sleeve welded around the tuned chamber portion of the pipe. The water exits the rear of the sleeve directly into the water box. The exhaust gases and water don't mix in the system until



the water box, which keeps cooling water away from internal engine parts and provides more stable horsepower.

This new exhaust system design also allows the tuned exhaust pipe and the water box to be fixed to the hull through rubber support vibration dampers. The engine is rubber mounted as usual. Overall result? The exhaust system is now significantly lighter and separate from the engine, reducing noise and vibration.



The real benefit, however, is the performance increase realized because of the water-free tuned exhaust chamber.

Other new items to look for:

- Larger cooling and bilge lines;
- Easy access battery;
- Fuel pump located between carb and cylinder;
- Rubber isolated electric box.

Service Bulletin Latest

by Ray St. John, Senior Technical Writer

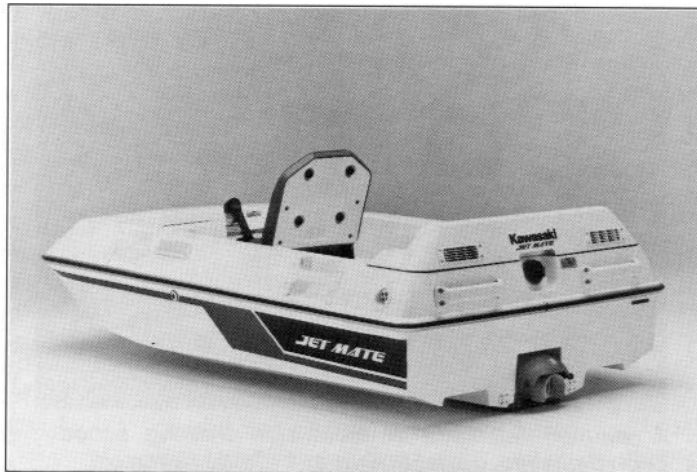
Bulletin Tip

HERE'S A QUICK TIP when servicing KX250-G1's modified for racing purposes: Refer to Service Bulletin RS89-05. On page two, under the heading "Cylinder Head," the 0.26mm gasket mentioned is the stock gasket, not an optional one.

JET MATE™ Service Bulletins

SOME NEW service bulletins recently issued:

MP89-01 JET MATE™ Watercraft Recall, March 24, 1989: Kawasaki has determined that it may be possible for gasoline to leak out of the carburetor case when the engine is running on eligible units. If this were to occur, the possibility of fire or explosion could result. No reports of such occurrences have been received; however, this recall campaign is being initiated to eliminate the possibility of any such occurrences. This recall authorizes Kawasaki Marine Products dealers to replace the defective O-ring which causes the leak.



MP89-02 JET MATE™ Watercraft Trailer FDM April 21, 1989: TR700-A1:JET MATE™ Watercraft Trailers through serial number 2000402 have the wrong seal installed in the wheel hubs. The seal lip rubs against a hole in the spindle allowing grease to leak out and water and other contaminants to seep in. This FDM authorizes Kawasaki Marine Products dealers to replace the hub seals on eligible units.

MP89-03 JET MATE™ Watercraft FDM, May 19, 1989: The exhaust pipe on some eligible units does not have an outlet hole in the water jacket. This causes the exhaust system to overheat, damaging the rubber connectors and causing leaks. The exhaust leaks fill the engine compartment with exhaust gases and the engine loses power. Continued use can cause the This FDM authorizes

Kawasaki Marine Products dealers to drill an outlet hole in the inner wall of the exhaust pipe on eligible units.

MP89-04 JET MATE™ Watercraft FDM, May 19, 1989: The rear seat on eligible units is a push fit into the rear part of the hull. Under windy conditions when the boat is towed on a trailer at highway speeds, the rear seat may blow off. This FDM authorizes Kawasaki Marine Products dealers to install hold-down straps on all eligible units.

MICRO-

by "Micro" Mike Jeffers, Parts Publications

To SIMPLIFY PARTS ORDERING, we are now including crankshaft bearing selection charts on the applicable microfiche. The chart will appear on the ap-

propriate microfiche grid, thereby eliminating another research step. New microfiche will include this information and older models will gradually be included as revisions are needed. See the "Crankshaft Bearing" article on Page 8 for details on rebuilding procedures.

THE KX MICROFICHE have recently been issued with complete jetting information included under the Optional Parts heading. This information will only appear on '89 and later product fiche.

AS IS ALWAYS THE CASE, any suggestions to improve the microfiche are appreciated. Please send suggestions using the Micro-K report card (P/N M99994-152).

Connecting rod big end bearing insert selection:

Con-rod Big End Bore Diameter Marking	Crankpin Diameter Marking	Bearing Insert	
		Size Color	Part Number
None	○	Brown	92028-1476
	None	Black	92028-1475
	○	Blue	92028-1474
○	None		

GUEST SPOT

Burbank Kawasaki Supports Technician Training

Guest Spot by Don Church

IN MARCH, LEON BELLISIMO, the owner of Burbank Kawasaki, invited me to join him in attending the Motorcycle Mechanic Trade Advisory Committee Meeting at West Valley Occupational Center in Los Angeles. Leon has been a member of the Advisory Committee for 10 years because he recognizes that support from local businesses is critical for the survival of motorcycle mechanic training programs such as the one taught by Dale Martin, Chief Instructor at West Valley Occupational Center. Dale has strong local support for his 20-week Motorcycle Mechanic program which is why he is still training young, enthusiastic students after 20 very successful years.

Leon recognizes the importance of healthy motorcycle mechanic training programs for the success of his business. He knows that training programs like Dale's don't turn out seasoned mechanics, but they do provide apprentice-level students who are well versed in the basics and are serious about their chosen career.

Every successful dealership has an employee training program aimed at developing the qualified staff needed for a successful service business. You all know that

trained mechanics don't arrive at your doorstep when you need them.

So get involved with a trade school in your area and support a

you because problems encountered on the job by a student can be discussed with his instructor.

After graduation, you can offer the student a full time job if you have found that he meets your standards. Here again the school can help you by providing you with formal guidelines on how to hire a mechanic, what to look for and even how to test prospective new hires to determine their level of competency and achievement.

Kawasaki's K-TECH Training classes are another resource in your overall dealership training program. Sending your personnel to Kawasaki's training classes for advanced, model-specific training demonstrates that you care about the development of their skills and careers. It is also an investment in the future of your business. Everyone comes out a winner.

West Valley Occupational Center is now on our Tech Services mailing list. We have sent them a catalog of all training video tapes, training manuals, parts catalog microfiche, and other service materials that are available. You can add the trade school nearest you to the same mailing list by calling (714) 770-0400, extension 2472. We will work with you to get exposure for Kawasaki in your local trade schools.



A staunch advocate of technician training schools: Leon Bellisimo, owner of Burbank (Calif.) Kawasaki.

motorcycle mechanic training program. Take the view that the trade school is a resource for your own dealership training program. Help steer the curriculum so that the students emerging from the trade school have the technical skills you need. You could hire students on a part-time basis while they're still in school and start them out with new product setup. Then gradually work them up to more difficult jobs. The school will be a great resource for

K-TECH NEWS

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Tracking Service Performance

by Ken Ploeser, Technical Services

COMPLETING THE SERVICE Operations Analysis Worksheet is an important step in the K-BOSS Service Plan. This worksheet is found in the K-BOSS Service Training Binder, Page 5-13 in the "Accounting" section. When you perform the analysis of your shop, it is essential that you follow the procedures outlined in the binder. If you don't have a K-BOSS training binder, call your Regional Training Instructor for a copy. If you have the binder with you now, follow along ...

The worksheet provides a basis for determining your present position in seven key management control indicators.

These are:

1. Labor Cost
2. Lost Time
3. Productive Hours Available
4. Cost of Labor Hours
5. Customer Rate Needed
6. General Expense per Hour
7. Operating Profit Percent

Labor Cost

THIS FIGURE SHOWS THE payroll for all the service department employees, including management. Obtain these figures from the payroll records or from a review of repair order hard copy data.

Lost Time

THIS IS THE MOST IMPORTANT factor in the whole plan. Since "labor hours sold" is your primary source of revenue for service, you must get a handle on this part.

Some "labor hours available" are not really available for sale to the retail customer. They may be billed internally for Sales or Parts work, but may never show up as "paid" on an accounts receivable due the Service Department. Most often, hours not sold at retail or billed internally are spent on tasks not billable outside the service department: pushing bikes, shop

clean-up, tool repair and the like. These labor hours must be monitored as closely as possible by the service manager.

"Lost hours unrecoverable" may also be time allocated for lunches, sick days, vacation, holidays, or service training classes. All shop hours must be accounted for in your service operations plan.

Productive Hours Available

NOW YOU CAN DETERMINE the potential revenue from labor sales of productive hours available, not just the total number of hours the service department is open. This figure shows the potential income to the department—a realistic figure to work with. Compare this figure with the actual income collected from repair orders over a 90 day review period. Now you can see the impact that lost time unrecoverable has on the "bottom line!"

Lost time is the culprit which needs close scrutiny in making key management decisions.

These first three areas give you an idea of the kinds of things you need to do to make sound manage-

ment and business decisions for the service department. Use the worksheet to analyze the remaining key indicators of your service operation.

The Service Operations Analysis Worksheet allows you to review the details of the operation in 43 simple steps. Yes, I said "43" and I also said "simple." Hey guys, this is one of those, "If I can do it, you can too" deals. The K-BOSS Training Binder will walk you through the entire process.

"Is it worth all the work?" you say. Well, do this simple calculation and then decide:

Take the total hours your shop is open in a month and multiply by the hourly retail labor rate you charge. Then multiply the total by 12 (the number of months in a year) and multiply again by the number of technicians you employ a year.

The accompanying chart lays it all out for you.

Are you getting your fair share of that yearly potential? If you need help working any of this out, just call your Regional Training Instructor. Good luck and keep the Good Times Rolling!

In Search Of Productive Hours: A Service Operations Analysis Can Help!

Are you getting your fair share of yearly potential labor sales? Fill-in the blanks below and then compare the result with your existing records:

Total Service Department hours per month _____ hours
x hourly labor rate \$ _____ per hour
= labor sale potential per man (per month) \$ _____
x 12 months per year _____
= yearly labor sales potential per man \$ _____
x number of technicians employed _____ techs.
= **Total Potential Labor Sales Income** (per year) . . \$ _____

SERVICE MERCHANDISING

Using the Kawasaki Revolving Credit Card

by Ken Ploeser

IF YOU HAVE THAT old sign on the wall that says something like "Cash Only" or "We don't take checks," you are missing out on the best thing to hit this industry since rubber tires: the Kawasaki Credit Card.

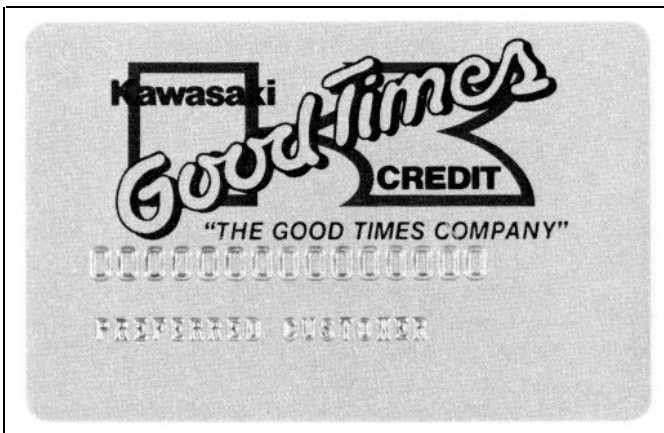
Here's how it works: If your customer purchased his Kawasaki from your store on the installment sales contract, he probably already has the card. You can check with Household Retail Services (HRSI) to verify the customer's revolving charge account status. (Refer to the Good Times Credit Plan dealer manual, P/N 99969-4011, for the procedures.)

If he did not purchase his Kawasaki on the credit plan, you can still offer him the benefits of the revolving credit card.

Here's how easy it is to get your service customer on the plan:

First: Have the customer complete the Good Times Credit Application.

Second: Use your K-SHARE terminal to submit the info to HRSI. The response time is usually less



than 15 minutes. You will receive a "Yes," "Maybe," or "No" response. The "Yes" and "No" responses are final; the "Maybe" means they need more time to process the request.

The credit limit is usually set at \$500 if the card request was sub-

mitted with the installment sales contract. Limits on cards issued for service and parts sales are based on the requested amount and the customer's credit history.

You can offer the card to almost any service customer that walks into your shop! Your customers can use the card to pay for their first service. They can even finance their first service on the card when they purchase their new Kawasaki! Think about this card's value to your business; apply your imagination and get creative!

Read the Good Times *Credit Plan Dealer Manual* for all the details. Decide on the person in your dealership who should take the

application information and assist your service customer with the details. Once you realize the benefits to your shop and to your customers, you will see a definite increase in customer satisfaction and service income.

Selling It Straight: The Right Oil For The Right Job

by Ken Ploeser, Technical Services

WHICH OIL TO USE is a question asked by every customer you have. The answer you give is important! We have found that some "failures" are directly related to the use of non-specified lubricants in Kawasaki products. Often, the blame is neither with the lubricant used nor the fault of the failed component. The problem is sometimes the combination of brand of oil used, operating conditions and the vehicle's unique requirements.

We do know how the lubricants recommended in the owner's manual will perform; so, if a type of oil is not specifically listed in the manual, then *don't* use it! This is especially true if your customer is experiencing a leaking problem or, worse, a mechanical failure on his Kawasaki. We may not be able to honor a request for warranty coverage if the lubricant used is not

specifically listed in the owners or other Kawasaki manuals.

Here are some examples of problems reported to the Hot Line:

1. ZG1200 Voyager final drive oil leaks: An oil leak from the final gear case vent is caused by the oil foaming and working its way out the vent hole. Advise your customers to use Kawasaki gear oil, API rated, GL-5 Hypoid gear oil, P/N K61030-001. Don't use any other brand unless it has anti-foam properties equal to or better than the Kawasaki oil. Many vent leakage problems have been reported with other brands of oil that do not meet API GL-5 specifications.

2. All watercraft models: Use NMMA-certified TC-WII or BIA certified TC-W Kawasaki JET SKI@ engine oil, P/N W61020-101A. Rod thrust washer failure, piston seizure, excessive combustion chamber deposits and premature ring wear can result from using

oils other than Kawasaki JET SKI@ engine oil.

A High Performance JET SKI@ oil has been developed for racing and extreme operating applications. This is a new product just introduced in the 1989 Kawasaki Accessories Catalog, P/N W61020-103.

3. KX race bikes: Use Kawasaki Two-Stroke Racing Oil, P/N K61020-022A. Using a high grade of gasoline (race fuel) and Kawasaki's two-stroke racing oil at the ratio recommended in the owner's manual will prevent premature engine bearing failure and piston seizure resulting from lubrication breakdown.

4. The KLF300-C1 4x4 front differential: Use API GL-5 Hypoid for limited slip differentials, SAE 140 grade. No lubrication-related problems have been reported in the limited slip differentials. Let's keep it that way by using the right oil.

TIPS FROM THE SPECIALISTS

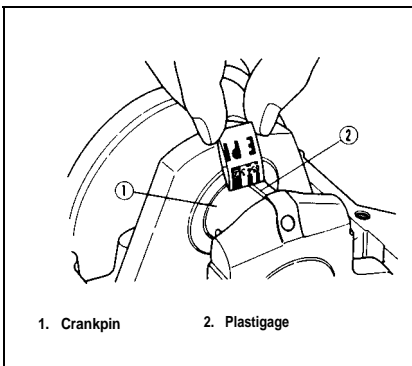
Crankshaft Bearing Selection

by Ken Ploeser and Randy Davis

FITTING CRANK BEARINGS can be a relatively easy process. The extent of damage to the crankshaft and rods will dictate the procedure you follow.

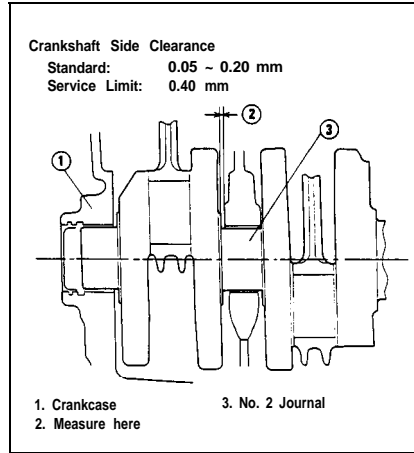
At the initial diagnosis, look for foreign particles in the oil by filtering it through a cheesecloth or nylon stocking. This will indicate the extent of contamination throughout the engine's oil passages. While the engine is apart, be sure to inspect and clean the cam bearings, oil pump, filter screen, pressure relief valve, oil passages, and any other places where metal particles could "hide" in the engine. Of course you will be replacing the oil filter and oil.

Some rod failures can be remedied by replacing only the damaged rod and its bearing without replacing any other rods or bearings. This is the case when one rod is bent from a hydraulic lock or if the wrist pin bearing failed. You may want to inspect the other rod bearings for wear

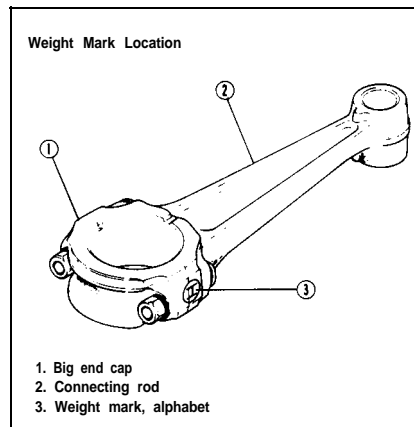


(depending upon the mileage of the unit), but it usually is not necessary to replace them. Some warranty repairs work out that way. Especially if only one rod failed, there should be no need to replace the other three bearings or rods.

Be sure to inspect the thrust surfaces and side clearances of the rods during reassembly. Select a new rod that matches the weight

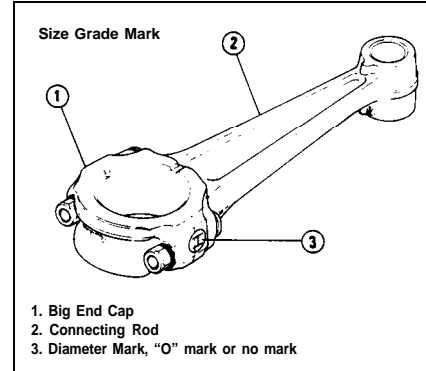


of the rod being replaced. This will minimize engine vibration. If the weight grade stamp on the rod is



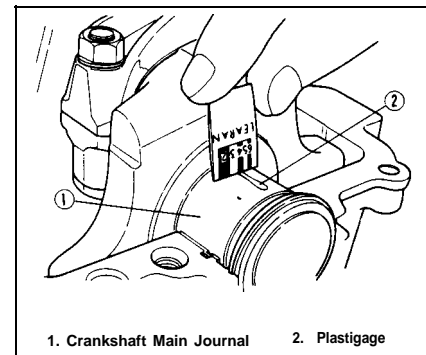
worn away, the original grade can be determined by weighing the rod assembly. Then, refer to the service bulletin microfiche: Bulletin #MC 83-09 gives the necessary information for determining the original weight code.

Now for the bearing selection process. Carefully follow the appropriate service manual procedures. The details of the process could not be better explained than in the manual! One item of confusion, though, is in the identification of the rod size. The size grade symbol is the circle (or lack of the circle) around the weight grade stamp on the rod's big end. If there is a circle, the rod is considered to be "marked." If the marks are worn



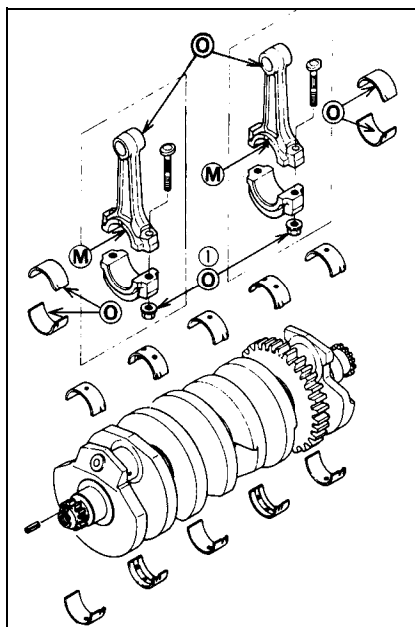
off or you are at all suspicious, you must measure the bore of the rod with a dial bore gauge.

The best way to obtain the correct final fit between bearing surfaces is with all the new parts ready and a selection of new bearing inserts available. If your parts department does not stock a full selection of rod and main bearing inserts, you will have to perform all the measurements first. Then, order the bearing insert specified by the chart in the service manual.

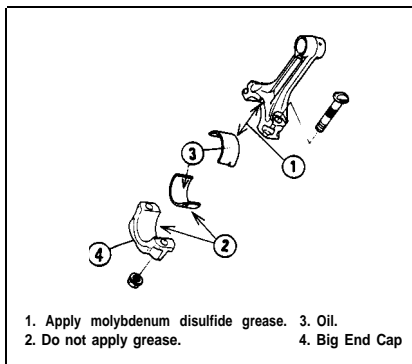


You'll need to Plasti-Gauge the new inserts to verify the fit.

If you are unsure of your measurements or you don't have the right measuring tools, it may be practical for you to initially assemble the rod for checking clearance with Plasti-Gauge using the "black" sized bearing. In most cases the "black" bearing is the intermediate size. If this yields the correct clearance, no further change in bearing insert size is necessary. If it is incorrect, then



respective locations in the rod or case. On some models, a film of molybdenum disulfide grease is



recommended between the upper rod insert and the rod bore inner surface. This reduces the initial impact on the upper insert when the bike is first fired up.

A break-in period similar to that for a new bike should be followed. You should recommend to the customer that the bike be returned for inspection and a possible oil change within the first 500 miles of operation.

If you need additional help with crankshaft servicing, call your regional training instructor or the Hot Line.

only one size change (up or down) will be necessary. An easy deal.

This is a process requiring a light touch and some previous practice. The main thing is to secure the crankshaft (or rod) from rotating when you tighten the Plasti-Gauge strip between the bearing and journal. ANY movement will likely give you a false reading.

These same basic procedures are followed in servicing the main bearing journals. The original KZ1300 did not have "select fit" main bearings. In 1981 the bearings were made available. Use the latest version of the service manual, (P/N 99924-1015-04) for the new main bearing selection.

In the case of a failed bearing, a very close inspection of the crankshaft journal is necessary. Again, rely on the service manual procedures for bearing sizing and fit. The oil passages in the crank need to be inspected and cleaned before you measure the journals. You will need a micrometer accurate to plus or minus 0.001 mm. A digital type works best. Use a dial bore gauge to measure the rod and engine case bores.

When you determine the correct bearing inserts to use, carefully place the insert halves in their

\$\$\$Service Tips Contest Winners!

THANKS TO EVERYONE WHO CONTRIBUTED to the *K-TECH NEWS* Service Tips Contest. The great response from technicians all over the country made the selection process particularly difficult. But the judges have finally made their decisions—two tips notable for the ways in which they make difficult tasks simple.

Congratulations to the winners, Michael Hughes and Jay Jackson whose winning service tips are presented below. Checks for \$50.00 are in the mail to each of you!

Winning Tip #1: From Michael Hughes, Service Manager, Tucson Kawasaki in Tucson, Arizona:

"Occasionally I have had a Vulcan 750 refuse to develop oil pressure on initial fire-up during the A & P. Obviously, this is not good for the engine, particularly the hydraulic lash adjusters.

"Remove the oil pressure sending unit switch at the front left side of the engine. Place an oil pan under this area. Start the engine, watch for oil coming out. Shut the engine off as soon as oil appears. Reinstall the sender switch and wipe down any oil spill. This process bleeds the air from the oil galley, preventing any air lock from occurring.

"On 454 and 500 twins, a simple process is to unscrew the oil filter 1/2-3/4 turn to bleed the air from the system."



Winning Tip #2: From Jay Jackson, Service Manager, Mac's Cycle in Clarkstown, Washington:

"When checking compression or purging water from the engine on all JET SKI® watercraft models, rather than grounding the spark plug leads on the cylinder head nuts, simply press the stop button and the start button simultaneously. This prevents any sparks while the engine cranks over and will not cause any damage to the ignition system."

TIPS FROM THE SPECIALISTS

Exploring The Latest In Battery Chargers

by Bob Carlson,
The Carlson Company

BACK IN THE MID-'70s small motorcycle batteries were frequently over-gassed with automotive and other inappropriate battery chargers, which were too hefty for this industry's needs. That's when (and why) Christie introduced the first charger specifically designed

recover sulfated batteries by means of a controlled, elevated charging voltage. They help restore batteries which, due to a sulfated condition, will not accept a charge from conventional battery chargers. And these new chargers work well with sulfated batteries which have become discharged due to seasonal or other prolonged storage. (Note that if a battery is

These chargers help restore normal battery chemistry by automatically providing a higher initial charging voltage of up to 20 volts which breaks down the sulfation. This higher voltage is electronically controlled and automatically shifts to a normal charging voltage as the "sulfation barrier" is overcome.

Ordinary battery chargers cannot provide this higher controlled voltage and cannot charge sulfated batteries. The new Christie chargers, however, provide simple, accurate current and time controls necessary for proper charging procedures. Readouts include ammeter and voltmeter. The charging time can be pre-set to the desired amount for up to two hours or the timer can be put on "hold" for charging periods exceeding two hours. When recovering a minimally sulfated battery, the current control knob is set at the "Sulfated Battery" position, which is a low and safe current setting adequate for most batteries.

The technician can easily determine if a battery is sulfated by observing the ammeter and voltmeter while attempting to increase current flow with the knob. If a battery is sulfated, current will not flow, indicating a high internal

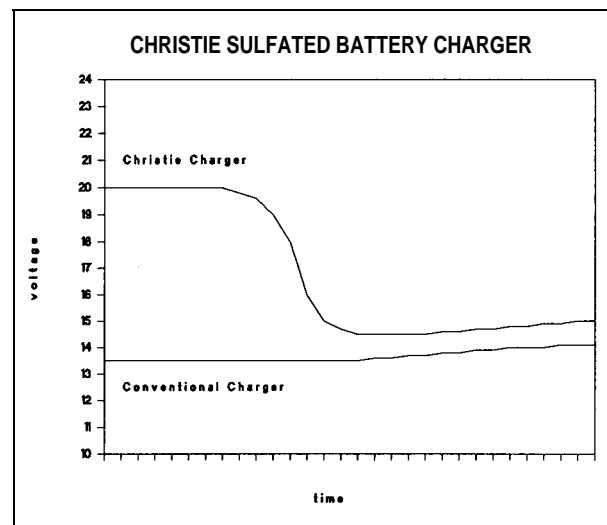


for motorcycle service departments. It could charge up to 10 batteries at a time automatically, at a slow rate, and is still popular.

Why, then, is Christie in the process of expanding its charger line with new products now? In a word: S-U-L-F-A-T-I-O-N.

Christie's latest electronic chargers supplement a service departments present charging methods with new and different capabilities. They are designed to

more than three years old and appears mostly white with sulfation, it is a doubtful prospect for recovery.)



Christie's latest chargers can bring sulfated batteries "back to life" with an electronically controlled system of high initial charge (to overcome the sulfation barrier) and then lower voltage final charge.

Bob Carlson founded the Carlson Company in 1972 to provide professional service equipment to motorcycle dealerships. He is a mechanical engineer and former engine builder, and has been a motorcycle enthusiast since 1952.



battery resistance. The ammeter will remain virtually at zero and the voltmeter will read higher than a normal charging voltage (approximately 15 to 20 volts).

If a battery is not sulfated (charged or discharged), advancing the current control knob will increase the ammeter reading while the voltmeter remains at a normal charging voltage.

Naturally, it's important to be aware of the battery's amp-hour size before cranking in too much current. Once sulfation is overcome, these units work like other constant-current chargers though they do not taper like some others.

The new Christie chargers can be used as "quick-chargers" (at normal charging voltage) when the battery must be promptly returned to service. Other chargers will likely damage the battery used in this manner; with the Christie charger, quick charging can be done at a current setting equal to 30 percent of the amp-hour rating of the battery (normal charging is at 10 percent). For example, if quick-charging a completely discharged 10 amp-hour battery, you would set the ammeter at 3 amps and charge for 3-1/3 hours. The equipment comes with complete instructions.

These versatile chargers work with 6- and 12-volt batteries, and have Automatic Positive Polarity Protection. The Model C 1512 S handles one battery at a time and the C 1012/2 S handles two at a time. Dealer benefits include increased income potential and improved customer service/goodwill.

The equipment is warranted for one year parts and labor and can be serviced nationally (and in Canada) by over 200 Authorized Service Centers.

The Carlson Company is a well-known source for Christie battery service equipment. Call (800) 222-6199 for additional info or to place an order. Mention the Summer issue of *K-TECH NEWS* and freight charges will be waived (offer good through August 15, 1989.)

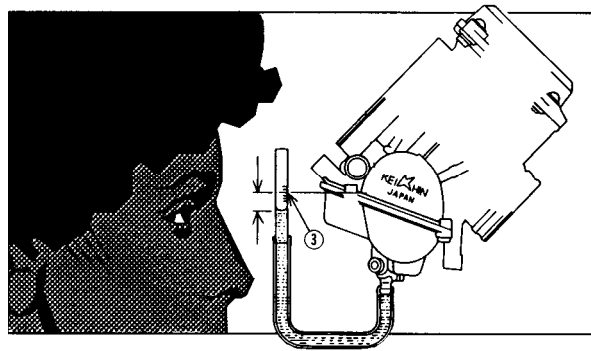
Service Fuel Level

by Steve Rice, Technical Support Technician

THE SERVICE FUEL LEVEL ADJUSTMENT procedure for the ZX-10 and ZX-7 is the same as all Kawasaki carbs—with one exception. The carb should be held at the proper angle while checking the service fuel level in the float chamber. Refer to Page 2-7 in the ZX-10 service manual and 2-8 in the ZX-7 manual. The angle measured from the centerline of the venturi to horizontal is 45 degrees.

You will need the special tool for loosening the float drain screw (P/N 57001-1269.)

The size and length of the level gauge tubing is critical in obtaining the correct service fuel level reading. Be sure to use a 6mm I.D. fuel hose, 300mm long. Don't use battery vent tubing; it's too small and will give a false reading! Also, when observing the level in the tube gauge, take the reading from the bottom of the fluid meniscus (the curve formed by the fluid sticking to the wall of the gauge) and look directly through the gauge.



Look through the gauge at the service fuel level while holding it on the carb body.

4x4 Limited Slip Differential Torque

by Ken Ploeser, Technical Services Instructor

HERE'S A QUICK WAY TO verify the limited slip differential clutch torque:

1. Raise both front wheels off the ground.
2. Slide the propeller shaft sliding joint off the pinion shaft.
3. Remove the cotter pin from both front hub nuts.
4. Secure one front wheel from rotating.
5. Use a torque wrench on the opposite wheel hub nut to check the amount of torque required to turn the wheel.
6. Smooth rotation of the torque wrench should yield a torque value between 69 and 115 *inch* pounds.
7. Replace the cotter pins with new ones when you are done.

If the measured value does not fall within the specified range, start the diagnosis by inspecting the oil. What grade oil was used? It should be an API rated GL-5 Hypoid oil, of SAE 140 grade for use in L.S. differentials.

You may need to remove the differential for disassembly and internal parts inspection. Check out the article in the last issue of *K-TECH NEWS* for tips on quick R&R of the differential.

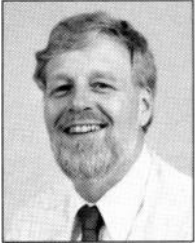
Police Bike Blues

by Randy Davis, Senior Technical Support Specialist

WE HAVE RECENTLY SEEN AN INCREASE in the symptom of popping out of fourth and/or fifth gear in late-model police bikes. The fix for this is a replacement gear set for third, fourth and fifth gears on the input shaft. Be sure to call the Hot Line for the part number and advice on how to proceed with the repair.

REGIONAL NEWS

The Basics Can save You Time! by Fred DeHart



THE SERVICE Department can never afford comebacks on jobs completed. It is critical during the busy season to insure that every job is completed properly. Comebacks cost

you time, and time is money. You can't afford to do any repair job twice.

With this in mind, every professional service person should strive to make the following basic procedures an instinctive part of their working habits:

Make sure all the individual parts of the mechanism or system you are working on are clean.

Inspect everything for wear or damage, including all related parts. You don't want to start putting an engine together and find you need another part you did not realize was damaged.

Measure any part that you suspect is out of tolerance or worn. Check the shop manuals for factory specifications. Every good technician should have his own precision measuring instruments.

Use proper assembly procedures! If in doubt, check the shop manuals, call the Hot Line technicians or your Regional Training Instructor. Remember to lubricate all moving parts. Use new gaskets, new seals and the proper sealants.

Torque every nut and bolt to its proper setting after you have cleaned them. No one was ever born with a torque wrench

built into their arm. The only proper torque is the one measured with an accurate torque wrench.

Make sure after the job is complete, that all recommended vital fluids are added. Engine oil, coolant, brake and clutch fluid, and gas cannot be forgotten.

Test ride the product! Make sure it functions properly and that no other areas need attention.

Inform the customer of any additional items you could service while you have his Kawasaki.

If these procedures become habit, comebacks will be practically non-existent. It's called professionalism.

Fred DeHart, 201 Circle Drive N., #107, Piscataway, NJ 08854, (201) 469-1221.

Greetings by Walter Rainwater



THE WAY A CUSTOMER is greeted sets the proper tone for any transaction between you and your customer. How are your customers greeted when they enter your dealer-

ship? Here are some techniques that you should learn and then be sure all employees are practicing:

1. Greet every customer that comes through the door. (And acknowledge him even when busy with other customers.)

2. Always be courteous.
3. Be polite; avoid spilling internal problems in your customer's lap.
4. Show genuine interest in the customer's needs.
5. Maintain a positive attitude; avoid just "putting in a day" for a paycheck.

Business is too competitive to let customers walk away because they were not greeted courteously and politely. Every time someone enters your store or calls on the telephone, you should add him (or her) to your Kawasaki "family."

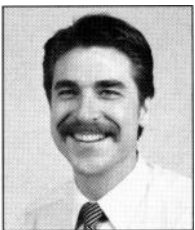
Never hesitate to do a little extra. A parts counterperson, for instance,

should offer to special order any part that is not in stock, rather than saying only, "We do not have it." A salesman could take a potential customer into the service department, introducing him to the service manager and the technician who would service his machine.

There are opportunities every day to "do something extra" for every customer. And the fact remains: The only repeat customers you have are those that like the way they are treated in your shop.

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

"Is It Warranty?" by Ken Ploeser



THE BEST WAY TO answer that question is to have the vehicle disassembled with the causal part in your hand and the Hot Line Technician on the phone. How-

ever, this is not the way it happens, nor is it always practical, so read on ...

First, the unit must be "eligible." Into which Claim Type category will the repair fit? Claim Types 1 through 5 dictate the way in which you proceed with the repair. The unit will need to fit the criteria of one of these types of claims.

Second, the condition of the unit must be acceptable. You MUST be familiar

with KMC's warranty policies according to the product warranty policy certificate. Inspect the unit. Has it been maintained properly? Check its service history. Ask for the warranty registration card.

So, "Is it warranty?" you ask. Let's look at item #2 on the warranty certificate: Coverage: "Any material or workmanship found to be defective by KAWASAKI (KMC) within the warranty term shall be remedied without charge for parts or labor at any authorized Kawasaki dealer within the continental U.S." (now includes Hawaii).

Manufacturing defects are covered. If you can't pinpoint the defect, though, or if you have any doubts, call the Hot Line for assistance. Don't proceed with a repair unless you are sure you have

determined the causal defect leading to a failure; you may not get reimbursement for the repair.

We are all working very hard to improve customer relations and maintain our high level of customer satisfaction. Show your commitment: Be forthright and up front with customers by informing them of the warranty policies and coverage at the time of sale. You are required to provide the customer with a copy of the appropriate warranty policy certificate for any Kawasaki product selling for more than \$15.00, so turn the requirement into an opportunity to show off your parts and service departments!

Ken Ploeser, KMC, 9950 Jeronimo Road, Irvine, CA 92718, (714) 770-0400.