



## PRODUCT SUPPORT ..... SERVICE NEWS

<b>BULLETIN NO.: 2002-010C</b>	<b>DATE: April 1, 2007 (Rev.)</b>	<b>PAGE: 1 of 6</b>
<b>TITLE: Recommended Service Tools and Supplies</b>	<b>RELEASE: Dealer</b>	
<b>SECTION: General</b>	<b>MODEL: All</b>	

Remove and discard 2002-010B, and replace with this revised Service News 2002-010C.

### GENERAL:

Kawasaki is pleased to provide a list of service tools and general service related supplies that are helpful for both field work and shop service work.

### DETAIL:

Please notice that while this is not an exhaustive list of all necessary service tools and accessories, this is a very good start for shop tooling and needed supplies in addition to standard shop and hand tools.

However, please remember that there may be some necessary Service Tools and supplies that are not on this list. If you would like to make some tooling and supply recommendations, please contact one of the following people;

Phone: 770-499-7000.

- KCM Service Manager - extension 5957
- KCM Field Service Manager - extension 6076
- KCM Training Manager - extension 6858

The following pages have the list of service tools and general service supplies.

January ~ February 2002 prices are shown. These prices are for general information only so as to have a relative estimate of the costs of the items listed, and are subject to change without notice.



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Remove and discard 2002-010B, and replace with this revised Service News 2002-010C.

## Details (cont'd):

The table below lists tools that are available from Kawasaki unless noted otherwise.

The list is compiled by model number, from 50ZIV/ZIV-2 through 135ZIV-2, and ZV models are applicable as noted. This Service News will be updated when we receive more ZV information.

This is not an exhaustive list of all needed tooling, but is a general guide to let the dealer know what is provided by Kawasaki, and tools that are good to obtain locally.

Part number	Description	Model	Price (Jan 2002)	Comments
Fluke 189, 23, 73,177	Digital Multi-meters (Not in Kawasaki Parts stock)	50 ~ 135ZIV-2/ZV	\$189.00 ~ \$367.00	ELECTRICAL; not for diode solenoid tests
Local purchase	Analogue type multimeter (Not in Kawasaki Parts stock)	50 ~ 135ZIV-2/ZV	\$75.00 ~ \$250.00	ELECTRICAL; for diode solenoid tests
ZZE12492	Wheel hub bearing socket	60Z, 65Z, 65ZB, & 65ZII	\$315.07	AXLE
38900-23510-7	Test port fitting	65 ~ 135ZIV-2/ZV	\$17.68	HYDRAULIC
ZZKL3002A	Pressure test kit ( 0 ~ 6000 PSI)	65 ~ 135ZIV-2/ZV	\$320.77	HYDRAULIC
ZZKL3000	Accumulator charge kit (For ZIII & early ZIV brakes; All ride control for ZIV/ZIV-2/ZV)	60ZIV~90ZIV-2; 95ZIV ~ 5309; 115ZIV ~ 5300	\$406.41	HYDRAULIC, BRAKE
ZZE12386	T/C inline adapter (2req.)	65Z, 65ZB, 65ZII, 70C, 70DC, 70ZII, 80ZII	\$98.25	TRANSMISSION
KL03-102-2	T/M solenoid valve tool	65ZII ~ 70ZIV-2 w/ orig. valves	\$87.01	TRANSMISSION
33191-52950	Additional Diagnostic Harness (adapts to 35020-20510)	65~90ZIV-2 sn 5601 ~ all ZV	\$19.28	ELECTRICAL
ZZE12493	Wheel hub bearing socket	70C, 70D, 70BC, 70DC, 80ZII~ZIV-2	\$315.07	AXLE
KL04-100-1	Internal gear hub extractor tool	70ZII ~ 70ZIV-2, 80ZIII ~ 80ZIV-2	\$29.01	AXLE
KL04-100-2	Wheel hub installation tool	70ZII ~ 70ZIV-2, 80ZIII ~ 80ZIV-2	\$294.98	AXLE
KL04-100-3	Wheel hub brg. & seal driver	70ZII ~ 70ZIV-2, 80ZIII ~ 80ZIV-2	\$430.62	AXLE
KL04-100-4	Brake oil passage alignment tool	70ZII ~ 70ZIV-2, 80ZIII ~ 80ZIV-2	\$440.56	AXLE
KL04-100-5	Brake piston retainer tool	70ZII ~ 70ZIV-2, 80ZIII ~ 80ZIV-2	\$349.07	AXLE
KL04-110-3	Wheel hub bearing socket	70ZII~ZIV-2, 80C, 80T, 85ZII, 85ZIV/ZIV-2, 90ZIII/ZIV-2	\$161.57	AXLE
ZZE12385	T/C inline adapter (2req.)	80C, 80T, 85ZII	\$99.55	TRANSMISSION
KL03-102-1	T/M solenoid valve tool	80ZIII~90ZIV w/ orig. valves	\$62.14	TRANSMISSION
ZZKL3003A	Residual brake pressure test kit	90/95/115ZIII and 85/90/95/115ZIV/ZIV-2	\$624.62	BRAKE
ZZE12384	T/C inline adapter (2req.)	95ZII,110ZII	\$102.70	TRANSMISSION
KL04-110-4	Wheel hub bearing socket	95ZII/ZIII/ZIV/ZIV-2	\$211.29	AXLE



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## Details (cont'd):

The table below continues the list from the previous page of tools that are available from Kawasaki unless noted otherwise.

The list is compiled by model number, from 50ZIV/ZIV-2 through 135ZIV-2, and ZV models are applicable as noted. This Service News will be updated when we receive more ZV information.

This is not an exhaustive list of all needed tooling, but is a general guide to let the dealer know what is provided by Kawasaki, and tools that are good to obtain locally.

Part number	Description	Model	Price	Comments
KL03-102-4	T/M solenoid valve tool	95ZIII ~ 95ZIV-2/ZV	\$80.80	TRANSMISSION
KL04-170-1	Planetary cover lift tool	95ZIII ~ 115ZIV-2/ZV	\$177.55	AXLE
KL04-170-2	Planetary assembly lift tool	95ZIII ~ 95ZIV-2/ZV	\$177.55	AXLE
KL04-170-3	Internal gear hub lift tool	95ZIII ~ 95ZIV-2/ZV	\$177.55	AXLE
KL04-170-4	Wheel hub lift tool	95ZIII ~ 95ZIV-2/ZV	\$177.55	AXLE
35020-20510	T/M Diagnostic Switch kit	95/115ZIV-2/ZV	\$93.80	TRANSMISSION
ZZKL3001	Accumulator charge kit	95ZIV-2 97C3-5310~95ZV 115ZIV-2 11C3-5301~115ZV	\$772.27	BRAKE
KL04-110-5	Wheel hub bearing socket	110ZII,115ZIII/ZIV/ZIV-2	\$229.94	AXLE
KL03-102-3	T/M solenoid valve tool	115ZIII/ZIV/ZIV-2/ZV	\$91.98	TRANSMISSION
KL07-101	Internal gear hub lift tool	115ZIII/ZIV/ZIV-2/ZV	\$248.58	AXLE
KL07-102	Planetary assembly lift tool	115ZIII/ZIV/ZIV-2/ZV	\$248.58	AXLE
KL07-103	Wheel hub lift tool	115ZIII/ZIV/ZIV-2/ZV	\$186.43	AXLE
33191-49150	E/G Diagnostic Harness	115ZIV-2/All ZV w/ ECM's	\$18.55	ENGINE
35010-60130	E/G Diagnostic Switch	115ZIV-2/All ZV w/ ECM's	\$40.66	ENGINE
35010-60180	E/G Diag. inc/dec Switch	115ZIV-2/All ZV w/ ECM's*	\$41.25	ENGINE
38900-23510-OSP 389000-23510-7	Steering pilot brake line "T" adapter fitting & quick connector	65~135ZV	\$28.16	HYDRAULIC
49320-20520	Engine Oil Filter removal tool kit (P/N 49320-20520)	90/95ZV-2	Check	Service News has instructions
J-38792-A	Vibration Analyzer	All models	\$1,210.79	Can help pinpoint vibration causes**

\* Also used to adjust low engine idle speed for all ECM operated ZV models. This feature not on 115ZIV/ZIV-2.

\*\* Comes with software that permits analyzer to generate a report that indicates approximate location & likely causes. This model of Electronic Vibration Analyzer (EVA) is made by Kent Moore. Others are available.



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Remove and discard 2002-010B, and replace with this revised Service News 2002-010C.

## Service Tooling and General Service Supply References

The table below is a list of service tools that are available from Kawasaki, other vendors and have references to Service or Parts News Bulletins that explain their use.

The list is compiled by model number, from 50ZIV/ZIV-2 through 135ZIV-2, and ZV models are applicable as noted. This Service News will be updated with more information when available.

<b>Topic</b>	<b>Service News</b>	<b>Parts News</b>	<b>Comments</b>
Special Service Tools	88-023A		
Transmission Solenoid Sockets (ZIII~ZIV-2)	93-002B		
Kawasaki O-Ring Kit ZZQK-1		94-011	For SAE flanged hose ends
ZIV Test Fitting Kit	95-001A		
ZZKL3000 Accumulator Charge Kit (95ZIII & 115ZIII)	95-019B		Also used to charge ZIV/ZIV-2 ride control accumulators
ZZKL3001 Brake Accumulator Charge Kit (95ZIV & 115ZIV)	97-007A		
Special Tools (95 & 115 Planetaries)	97-002A		
ZZKL3002A ZIV-2/ZV/ZV-2 Pressure Test Kits		98-003C	Oil Pressure Port Quick disconnects for Testing Replaces 5 other kits & adds special test fixtures. Available at <a href="http://www.tifco.com">www.tifco.com</a> .
Complete Hydraulic Pressure Test Kit with accumulator charge adapter, digital gauge, & special fittings	2006-008A		Troubles of test lights
Electrical Circuit Testing	98-008		
ZZKL3002 ZIV-2 Pressure Test Kits	98-004B		
Transmission & Monitor Controller Diagnostic Switches	98-037A		65~90ZIV-2; 5601 ~ ZV
Engine Diagnostic Switches	99-010A		115ZIV/ZIV-2/All ZV w/ ECM
Residual Brake Pressure Test Kit (ZIII~ZIV-2)	99-014B		
Threadlockers, Primers and Sealants	99-026A		Loctite®
T/M and Monitor Controller Diagnostic Switch differences 95/115ZIV-2/ZV	2000-019		Differences in application
Checking steering system pilot pressures. Discusses use of 38900-23510-OSP adapter.	2003-014		Adapter tool may also be used in accum. line for testing.
Cummins Quick Check 5100 available only through Cummins	2004-027A		Refer to Cummins website ( <a href="http://powerstore.cummins.com/">http://powerstore.cummins.com/</a> )
Tools for engine repair of BB-6BG1T Isuzu e/g.	2005-001		Isuzu engine tooling, pullers, installers, testers, etc.
90/95ZV-2 Engine Oil Filter removal tool kit (P/N 49320-20520) Service News has instructions	2006-006	2006-002P	To handle oil filter in tight area
65TM/TM-2/65ZIV/ZIV-2/ZV/ZV-2 Brake Wear Gauge	33240-20040		Parts Catalog 93307-00066, 895-1
50/60ZIV/ZIV-2/ZV/ZV-2 Brake Wear Gauge	33240-20030		Parts Catalog 93306-00042, 895-1

**Note:**

The above list is a general reference only. This information is a supplement to the information found in the Shop Manual. There may be more references on the topic available from other sources, as the Shop Manual, troubleshooting guide, etc. Always look up and review information found in the Shop Manual for your reference.



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The follow pages lists tools by topic. Some tools may be repeated in several topics, as the functionality of the tool may overlap from one application to another.

Please remember to always include a good First Aid Kit in necessary supplies for the Shop and for all Road Service Trucks.

### ***Shop and Shop Tools***

Equipment repair shop.

General guidelines are provided below. Kawasaki recommends that all local, Municipal, State, Federal, and Provincial laws be closely followed.

- Computer with access to internet, e-mail, and Kawasaki K-Tips and K-Care system
- Computer with access to NDS or similar Shop Accounting and Service Tracking system
- Shop of adequate size so as to accommodate most machines
- Appropriate overhead lifting equipment, such as a 5~10 ton overhead crane
- Air compressor system for pneumatically driven power tools
- Large impact wrenches; 1 inch drive and 1½ inch drive.
- Lube system, including oil disposal service (as is required by authorities)
- Welding equipment, torches, supplies, & safety equipment (Including MIG Welder)
- Plasma cutting equipment
- Hydraulic Press (50 ton)
- Machining Equipment or availability to have machine work done at a local machine shop
- Hydraulic Cylinder Rebuild Room (Cylinder Bench)
- Other items in the truck tools list as required for work being performed in the shop
- Hydraulic hose and tube cleaning gun (to flush or purge debris from lines)
- Hydraulic pressure test kit 79648 - available through TIFCO (See Service News 2006-008A)
- Parts Cleaner
- Wash Bay & Paint Booth

### ***Diagnostic Tools***

Diagnostic tools that are needed to record and determine the cause of symptoms noted by the service technician.

- Calculator; for converting from metric to commonly used American standards
- Stop Watch for checking machine and hydraulic cycles
- Ohm Meter (Analogue NEEDLE type) for Solenoid diode testing in addition to Digital Meter
- Photo Tachometer
- Hydraulic Flow Meter
- Hydraulic Pressure Gauges;           0 ~ 100 PSI  
  0 ~ 300 PSI  
  0 ~ 600 PSI  
  0 ~ 1000 PSI  
  0 ~ 6000 PSI
- Air pressure gauge; 0 ~ 250 PSI pneumatic.
- Noise datalogging dosimeter to check noise level (to measure noise levels)
- Air flow anemometer for checking for blockage of air discharge from radiators and coolers
- Infrared thermometer
- Vibration meter (to measure vibrations)
- Structural Metal crack detector



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### **Miscellaneous Hand and Truck Tools**

Service Truck equipped with truck mounted crane sized as required by work performed  
Dry publication library storage  
Palm Pilot for accessing Cummins Quick Check program; Or laptop for Cummins Insite program  
A/C related tools:

- Gauges
- Refrigerant recovery and reclaim machine
- Refrigerant leak detector
- Thermometer
- Fin straightener

Welder/generator, portable; Welding Supplies; Oxy/acetylene / air arc cutting equipment

Battery charger; For battery boost and slow battery charge requirements

Air compressor

Air / electric operated oil transfer pump

Pneumatic impact wrenches, as required by work performed

Air or electric drills as required by work performed.

Electrical:

- Battery charge and load tester
- Wire and connector repair supplies
- Wire strippers
- Crimp tools
- Small diagnostic accessories, jumper leads, circuit test meters, etc. (Service News 98-008)

Torque wrenches and accessories

- In-lb torque
- 250 lb-ft torque
- 600 lb-ft torque
- Torque multiplier

Socket sets; Including pull handles, extensions, etc. as required by work performed

- 3/4 " drive
- 1" drive

Std. and Metric tap and die set as required by work performed

Left hand rotation drills, "easy outs", & internal pipe wrenches. (Broken fitting / bolt removal.)

Air or electrically operated oil pump

Assortment of hydraulic test fittings and adaptors as required by work performed

Plugs & caps for blocking hydraulics

- 4mbspp-plug
- 4fbsppx-cap
- 6mbspp-plug
- 6fbsppx-cap
- 10mbspp-plug
- 10fbsppx-cap
- 12mbspp-plug
- 12fbsppx-cap
- 16mbspp-plug
- 16fbsppx-cap

Pipe cutters and flare tool as required by work performed

Heat gun

Gear and hub pullers as required by work performed

Digital camera that can transfer digital images via e-mail (Note: See Service News 94-022B)