



Kawasaki Diagnostic Software Version 3 KDS v.3 Instruction Manual

Foreword

This Instruction Manual explains the operating principles of KDS to diagnose Kawasaki's Smart (KI-PASS), Digital Fuel Injection (DFI) and ABS systems. This manual is a brief introduction to KDS 3 and assumes that the technician is familiar with PC usage.

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Section 1: Kawasaki Diagnostic System Version 3 Outline

1.1 System Function

KDS Version 3 was developed for Smart equipped Motorcycles with DFI, non-Smart equipped motorcycles with DFI, and DFI equipped PWC and ATV. The following functions are available.

Smart System equipped Models

- 1. Register the Steering Lock unit, FI ECU
- 2. Register the Fobs, Immobilizer key
- 3. Register or delete the TPMS sensor ID
- 4. Diagnose the Smart System
- 5. Monitor the Smart System

NOTE

 Smart System components must be registered to the Smart ECU in order to function correctly.

DFI equipped Vehicles

- 1. Display ECU and model information
- 2. Perform diagnostics
- 3. Display, save, and print service data
- 4. Actuate individual injectors and other actuators
- 5. Display, save, and print real-time sensor values
- 6. Display and print graphs of real-time sensor values
- 7. Erase stored service data

ABS equipped Vehicles

- 1. Diagnose the ABS system
- 2. Erase stored service data

Other Features

- 1. Software can be used in ten languages.
- 2. Software operates on Windows 2000/XP/Vista.
- 3. Three units (SI, Metric, English) can be selected to display sensor values.

NOTE

~ Some functions are not available on all models.

1.2 KDS Version 3 System Configuration

KDS Version 3 operates on a PC and communicates with the unit via a USB communications port, communication cable, and a signal converter.

KDS consist of, (1) CD, (2) Signal Converter, (3) Communication Cables. (Fig.1 shows the KDS 3 Kit parts for ZG1400A/B)..



1.3 ZG1400A/B System Configuration



1.4 Personal Computer (PC) Minimum System Requirements for KDS 3

 Table 1-a PC Requirement

Hardware	Requirements
CPU	Pentium, 133 MHz or faster
OS (Operating System)	Windows 2000/XP/Vista
Hard Disk	20 MB or more of free space (40 MB or more is recommended.)
Display	SVGA
Disk device	CD-ROM or DVD drive
Printer	Black and White or Color
Interface port	USB port
USB Cable	Should be used between PC and Converter.
	BUFFALO, USBC2-SBK, (length: 2.0 m)
	If this cable is not available, use a similarly specified double shielded cable with a maximum length of 2 m.

NOTE

- ~ Do not use a screen saver.
- ~ Do not use power management mode.
- ~ When changing an ECU, exit KDS and then restart.
- ~ You must use the PC as an administrator.
- ~ USB cable should be purchased locally.

Section 2: Installation Procedures

NOTE: All screenshots in this Manual are from a PC operating on Windows XP.

You must install two software programs on your PC. One is for the KDS 3 Adapter (converter) and the other is for the KDS software.

2.1 Installation of KDS 3 Adapter

- o Start your PC, and then insert the CD (P/N 57001-1650).
- o Open the CD, and save the **KDSAdapter.inf** and **KDSAdapter.sys** files to a location on your PC.
- Connect the KDS 3 Adapter (PN 57001-1648) to your PC with the USB cable.

NOTE

~ Purchase a USB cable locally with a maximum length no longer than 2m.



Fig. 2-1 Files in CD

- o Connect the KDS Adapter to the connector (6-pin type) on the main harness.
- o Turn ON the ignition.



KDS Adapter (Signal Converter)

The PC detects the KDS Adapter and starts the Found New Hardware Wizard.

- o Select No, not this time; a new screen will appear.
- o Select Install from a specific location (Advanced) on the next screen.

Then select Next>





Fig. 2-2 Starting the Wizard

Selection of Search Option

o Select Don't search
Then select Next>



Fig. 2-3 Search Selection

Selection of Device Driver.

- o Select Show compatible hardware
- o Select KDS Adapter
- o Then select Next>



Fig. 2-4 Selection of Device Driver

- o Select the location of KDSAdapter.inf file.
- o Then select Open.



Fig. 2-5 Locate Driver

acate i lie				12 68
Look or	Life,Dee	0	2 0 7 12 12-	
	B-ATTRACTOR			
Hy-Comparison Hy-Comparison				
.9	File cares Files of type:	12/Shdaphe M	1	Open Center

Fig. 2-6 Selection of Driver

Installation in progress screen.



Fig. 2-7 Installation

o Finished: select Finish.



Fig. 2-8 Installation Complete

2.2 Initial Installation of KDS 3 Software

- o Start Windows.
- o Insert the KDS CD into the CD drive.
- o CD autolaunches (or navigate to the drive location then double click **InstKDS.exe**).



Fig. 2-9 KDS 3 File Folder

o Select the language. Then select **OK**.

Language abbreviation are as follows. DE: German, EL: Greek, EN: English, ES: Spanish, FR: French, IT: Italian, NL: Netherlands, PT: Portuguese, SV: Swedish

Installation program starts automatically. o Select **Next>**



Fig. 2-10 Language Selection



Fig. 2-11 Installation Wizard

o Select Installation Folder.

The default folder is:

C:\Program Files\Kawasaki Diagnostic System Ver.3

- o Select Just me
- o Then select Next>



Fig. 2-12 Selection of Installation Folder

o Follow the on screen instructions.



Fig. 2-13 Install Shield Wizard



Fig. 2-14 Beginning Installation

Fig. 2-15 Installation Complete

Installation in progress screen

Installation completes.

o Select Close

Section 3: Cable Connection

3.1 Required Tools

- A. KDS 3 Adapter 57001-1648
- B. Com. Cable (6-pin/8-pin) 57001-1649
- C. KDS 3 Software 57001-1650
- D. Com. Cable (8-pin/4-pin) 57001-1688
- E. USB Cable

Fig. 3-1 Required Tools

Detail of Connection

- 1. Connect to main harness of vehicle
- 2. USB port of KDS 3 Adapter
- 3. Connect to KDS 3 Adapter
- 4. Connect to PC
- 5. 6-pin port, Connect to KDS 3 Adapter
- 6. 8-pin port, Connect to ABS ECU port of main harness
- 7. 8-pin port, Connect to No.6 port
- 8. 4-pin port, Connect to KDS port of main harness

3.2 Connecting PC to ECU

Refer to the following diagrams or the Service Manual for the location of the diagnostic ports.

3.2.1 ZG1400A/B

- (1) Smart and DFI systems
- o Remove seat.
- o Locate the 6-pin connector [A] on the main harness and remove the cover.
- o Connect the 6-pin connector to the Adapter [B].
- o Connect the USB cable [C] to the Adapter.



Fig. 3-2.1 Tool Connection

- (2) ABS system
- o Remove seat.
- o Locate the 8-pin connector [A] on the main harness and remove the cover (ABS port).
- o Connect cable 57001-1649 [B] to the 8-pin ABS port.
- o Connect the 6-pin connector on 57001-1649 to the Adapter [C].
- o Connect the computer's USB cable [D] to the Adapter.



Fig. 3-2.1.1 Tool Connection (ABS)

3.2.2 ZX1200-A/B

- o Remove the (rear) compartment cover.
- o Remove the cover on the harness.
- o Connect the adapter cable to the diagnostic port on harness
- A. Diagnostic port (4-pin) on harness
- B. Communication Cable



Fig. 3-2.2 Connection of ZX1200-A/B

3.2.3 VN1500-P

- o Remove the seat.
- o Remove the cover of Diagnostic Port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port (4-pin)
- B. Battery
- C. ECU

3.2.4 VN1600, VN2000

- o Remove the seat. --VN1600-A/B
- o Remove the seat and battery cover -VN2000-A
- o Remove the cover of Diagnostic Port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port (4-pin)
- B. Battery
- C. ECU



Fig. 3-2.3 Connection of VN1500-P



Fig. 3-2.4 Connection of VN1600-A

3.2.5 ZX636, ZX600, ZR1000, ZR750, ZX1000-C

- o Remove the seat.
- o Remove the cover of Diagnostic Port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port (4-pin)
- B. Battery
- C. ECU

3.2.6 JT1200B/D, JT1500A

- o Remove the seat and rear storage pocket.
- o Disconnect the 8-pin connector [C] and insert the relay cable (57001-1535) between the connector.
- o Connect the lead of relay cable to the (-) terminal of battery.
- o Remove the cover of diagnostic port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port (4-pin)
- B. Relay Assembly
- C. 8-pin Connector
- D. Battery
 - The relay cable must be connected to prevent loss of communication due to the ECU timing out if the engine is not started.

3.2.7 VN900B/D

- o Remove the seat.
- o Remove the right side cover [A].
- o Access to the Diagnostic Port [B] from right side.
- o Remove the cover and connect the adapter cable to the diagnostic port on harness.
- A. Right Side Cover
- B. Diagnostic Port (4-pin)



Fig. 3-2.5 Connection of ZX636-B



Fig. 3-2.6 Connection of JT1200-B



Fig. 3-2.7 Connection of VN900-B/D

3.2.8 ER650, EX650

- o Remove the seat.
- o Remove the cover of Diagnostic Port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port for KDS (4-pin port)

B. Diagnostic Port for ABS (8-pin port) ABS model only

3.2.9 ZX1400

- o Remove the seat.
- o Remove the cover of Diagnostic Port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port for KDS (4-pin port)

B. Diagnostic Port for ABS (8-pin port) ABS model only

3.2.10 KLE650

- o Remove the seat.
- o Remove the cover of Diagnostic Port [A].
- o Connect the adapter cable to the diagnostic port on harness.
- A. Diagnostic Port for KDS (4-pin port)

3.2.11 '07 ZR750/ZR1000

- o Remove the seat.
- o Remove the cover of Diagnostic Port [A].
- First connect the Connection cable (57001-1699) to the diagnostic port on harness.
- o Second connect the Adapter cable.
- A. Diagnostic Port for KDS (4-pin port)



Fig. 3-2.8 Connection of ER650



Fig. 3-2.9 Connection of ZX1400



Fig. 3-2.10 Connection of KLE650



Fig. 3-2.11 Connection of ZR750 / ZR1000

3.2.12 JT1500B/JT1500C

- o Open the front storage compartment cover.
- o Remove the front storage case.
- o Push in the pins and remove the battery cover.
- o Connect the communication cable to the Diagnostic Port [A] near the battery.
- A. Diagnostic Port for KDS (4-pin port)
- Insert the Adapter cable (57001-1696)
 between the 6-pin connector [B] on harness.
- o Then connect the leads of the Adapter cable.





Fig. 3-2.12 Connection of JT1500B / JT1500C



Fig. 3-2.12.1 Connection of JT1500B / JT1500C

3.2.13 KSF450B

- o Remove the cover of Diagnostic Port [A].
- Connect the adapter cable to the diagnostic port on harness.
 The port is located under the front fender (left side).
- A. Diagnostic Port for KDS (4-pin port)

3.2.14 VN1500-J/L/N/R

- o Remove the seat and battery holder.
- o Pull out the ECU from the case.
- o Remove the 8-Pin cover from ECU & connect the cable to 8-pin port of ECU
- A. ECU
- B. Communication Cable



Fig. 3-2.13 Connection of KSF450B



Fig. 3-2.14 Connection of VN1500

Section 4: Menu Items

4.1 Menu Structure

The menu structure diagram and menu items outline are as shown in Fig. 4-1 and Table 4-a, followed by further explanation on each menu. Some functions are not available on all models.



Fig. 4-1 Menu Structure

4.2 Function of Menu Items

Table 4-a Menu Feature

Menu Item	Description & Function
With Smart System	Select for ZG1400A/B
Without Smart System	Select for all non Smart equipped models
Model Information	Displays model information
KI-PASS	Select when diagnosing/servicing KI-PASS system and parts
KI-PASS Related Menu	Select when diagnosing/servicing KI-PASS system and parts
Unit Registration	Select when servicing Steering Lock Unit or FI ECU
FOB Registration	Select when registering FOB
Diagnosis	Select when diagnosing KI-PASS system
Immobilizer Key Registration	Select when registering Immobilizer Key
Tire Air Pressure Sensor	Select when registering TPMS ID
ID registration	
Tire Air Pressure Sensor	Select when deleting TPMS ID
ID deletion	
Real Time Monitor	Show current situation of KI-PASS system
Fuel Injection	Select when diagnosing FI system and parts
FI ECU Related Menu	Select when diagnosing/monitoring FI system and parts
Real Time Monitor	Displays engine running conditions and previous codes
Actuator Test	Run or stop the actuator
Graph	Draw and display the graph.
Real Time Monitor	Displays engine running conditions and previous codes.
Diagnosis	Displays self-diagnosing codes stored on the ECU
ABS	Select when diagnosing ABS system
ABS Current Failure	Show current failure of ABS system
Intermittent Failure	Show previous failure of ABS system
Erase Stored Service Codes	Erase service codes

Section 5: KDS 3 Operation for KI-PASS System

The ZG1400A/B KI-PASS (Smart) system requires code verification for the ECU units to function correctly.

5.1 Starting KDS 3

- o Turn on the PC
- Start KDS Version 3 from the start menu.
 Or double-click the KDS 3 icon on the desktop screen.



Fig. 5-1 KDS 3 icon

Fig. 5-2 will appear.

- o Read the instructions and perform the preliminary inspection.
- o Select **OK** after performing the preliminary inspection.

Kannaki Digmetic System	8
Important Information	-
Safe Operating Information 1) Observe general safety rules to avoid a fire hazard, injury, or burn. 2) Do exit rul the engine in a close area. Exhaust gas contains carbon monoide, an odorless and deady poison 3) To avoid injury, do not place hands, feet, or tools near moving parts such as wheels or chain and sprockets.	
Preliminary hispection 1) Check if the battery is charged enough to crark the engine 2) Check if the battery is charged enough to crark the engine 3) Visually impect weres and consectors for damage or loose connections Check that the battery is imminist are chain and secure 4) Check to see if the spark plags are in good condition and that the engine oil and costart are full 5) Correct known problems such as a low battery, is bad electrical connection, or a loose hall line before using KDS	
ox	

Fig. 5-2 Important Screen

Fig. 5-3 will appear.

o On Smart System equipped models, select With Smart System.

rect whether vehicle has smart system	
New gallen redst OX dang commissible fan gallen redst OX ' yw cannol lant tie gallen redst OK, went YMP Smel Sy ie gallen tool.	dan"-eller til passeda eller pasteng fr
Without Smart System	With Smart System
Without Smart System ABS	With Smart System Exit

Fig. 5-3 Main Menu

- o The KDS Main Menu and Model Information screen will appear.
- o Select KI-PASS.

KDS Main Menu Model Information		Cawasaki
Model	Model Year	Specification
ZG1400A8F ZG1400B8F	108 108	EUR WVTA(FULL H AU
e Al Auto Al Au Al Isan Di Kara I	nis (A.Santi (D.Interior) (B.Intery) 1 April 18 March Higher (B. Inters I. In	
Fuel hysoton		KIPASS
Data ((84)

Fig. 5-4 Main Menu & Model Information

o Select one of the options from the KI-PASS Related Menu

9er 21175-0127 9er 21175-0117 5er 27006-0038
Immobilizer Kay Regultration
Tire Air Pressure Sensor ID Registration
Tire Air Pressure Sensor ID Deletion
Real Time Monitor
Return

Fig. 5-5 KI-PASS Related Menu & ECU Part Number

5.2 Diagnosis.

- o Select **Diagnosis** on the KI-PASS Related Menu to display current failure codes
- Fig. 5-6 is a sample screen.



Fig. 5-6 Diagnosis

5.3 Real Time Monitor

- To display current KI-PASS component condition, select **Real Time Monitor** in the KI-PASS Related Menu.
- Fig. 5-7 is a sample screen.



Fig. 5-7 Real Time Monitor

5.3.1 Selecting Display Items

First select the group from the pull down menu.
 There are four groups:
 Engine Information,
 Warning Information,

Monitoring Information, and All Information.

All Information includes Engine, Warning and Monitor Information.

o Choose Select.

Rammadol (Nagional Al Synthese (71 - Senici)				
Real Time Monitor				\sim
Engine Information				-
Warning Information Monitoring Information All Information				
	-	1	17-17	
Save.	Print	Select	R	jāum.

Fig. 5-8 Real Time Monitor

Fig. 5-9 will appear.

o Select items and then select OK

On this screen, items can be selected and displayed for service information.

NOTE

- ~ Use the "space" key to check or uncheck each item for display purpose.
- Press the "arrow" keys (upward or downward) on the keyboard to move the items.

Service Data	Units	
Solutio of Smart system Solutio of serving lock ECU ID continuation Solutios of serving lock ECU ID continuation Solution of serving lock ECU ID continuation Status of FI ECU ID continuation Celluly register key number FI-fully register key number FI-fully register FI-B number FI-MS Final The Air Pressure FI-MS Final The Air Pressure FI-MS Final The Air Pressure Status of thereing lock Status of thereing lock Status of thereing lock	Pieces Pieces Pieces Pieces Pieces Pieces mmHg smmHg	
B TPMS Rear ID B Received TPMS pressure B Steering lock ECU certification failed	mmHg bmos	

Fig. 5-9 Select Items

Fig. 5-10 is a sample screen

Real Time Monitor			
Monitiining Information :			
Service Data	Values	Units	T
Status of Smart system	ECU ID co	The second s	1
Status of steering lock ECU ID confir	ECU ID co		
Status of FI ECU ID confirmation	ECU ID co		
Temporary Immobilizer key number	0	Pieces	
Fully registered Immobilizer key number	2	Pieces	
Temporary FOB number	0	Pieces	
Fully registered FOB number	3	Pieces	
FOB number is registerable	3	Pieces	
TPMS Front Tire Air Pressure		mmHg	
TPMS Rear Tire Air Pressure		mmHg	
Received TPMS ID	00000000		-
Save Print 5	alart I	Duture	-

Fig. 5-10 Real Time Monitor

Forning Date	Tutation .	Trans.
Status of Smart system Status of Smart system Status of steering lock ECU ID confirmation Status of FI ECU ID confirmation	ECU ID confirmation is correct ECU ID confirmation is correct ECU ID confirmation is correct	9
Temporary Immobilizer key number	0	Pieces
Fully registered immobilizer key number	2	Pieces
Temporary FOB number	0	Pieces
Fully registered FOB number	3	Pieces
FOB number is registerable	3	Pieces
TPMS Front Tire Air Pressure		mmHg
TPMS Rear Tire Ar Pressure		mmHg
Received FPMS IU	0000000	
Status of steering lock.	ORDER CO	
TEMO Reat ID	08005163	
Received TBME meaning	0.00	monthing
Annual to set be a supple	9.99	mereny

Fig. 5-11 Real Time Monitor

5.3.2 Saving Service Data

Data obtained through communication with the ECU can be saved.

- o Select Save (Fig. 5-11).
- o Select one option and then select **OK** (Fig. 5-12).

o Enter comment then select **OK** (Fig. 5-13).



Fig. 5-12 Select Save Option

Commit Highertic System	23
Insert your comment	
1009/07 2/01400A9F 005024	
OK. Cancel	

Fig. 5-13 Comment (sample)

To see the screen more clearly, you can maximize the screen and enlarge the column widths (Fig. 5-11).

NOTE

Fig. 5-14 appears. Select a folder and select Enter or Save to save the data as a CSV file.
 By default, the file name will consist of YY(year)MM(month)DD(day) and two incremental numeric digits (00-99). ECU Parts No., Model Name, Model Year & Specification are saved automatically in the data.

NOTE:

CSV: comma separated value

o A message will appear after saving the file. Select **OK** (Fig. 5-15).

See	1011100	- No	* 81 07 12	1
Recet				
C)				
He Denne				
-				
Ny Campan				
-	(in case	[20070015_149521.cm		See
My Testanti	ten arten	CDV Fam (" unit		Earth

Fig. 5-14 Save Folder (sample)

KDS3	
٩	Saved file
	ж

Fig. 5-15 Save Completed

5.3.3 Printing

Data obtained through communication with the ECU can be printed.

o Select Print (Fig. 5-11).

Fig. 5-16 will appear.

- o Select a print option and select **OK** to print.
 - If a printer is not connected to the PC, a screen print will be created.
- o Select **Cancel** to return to the previous screen.

Fig. 5-16 Print Option

5.4 Tire Air Pressure Measuring System (TPMS) Sensor Replacement

When a TPMS sensor is replaced, the replacement sensor's ID must be registered with the Smart ECU.

5.4.1 Deleting TPMS ID.

o Select **Tire Air Pressure Sensor ID Deletion** on the KI-PASS Related Menu.



Fig. 5-17 KI-PASS Related Menu

- o Currently registered sensor IDs are shown (Fig. 5-18).
- o Select the wheel sensor to delete. In this example the Front Wheel is selected.

	Front Wheel ID	00005363	-
	Rear Wheel D	00005147	-
Select to	re sensor ID to be delated	l.	

Fig. 5-18 TPMS ID

o When Fig. 5-19 appears select Yes

o Next Fig. 5-20 appears, select OK

Tire Air Pressure Se	nsor ID Deletion 🔣
Deleting front Do you want to	TPMS sensor ID. to continue?
Yes	No

Fig. 5-19 TPMS ID Deletion

The Air Pressure Sensor ID Deletion	×
Deleted front tire air pressure sensor ID	
ок	

Fig. 5-20 TPMS ID Deletion OK Screen

o On Fig. 5-21 the Front Wheel ID is changed to 00000000. Next select **Return**

Presently registered sensor ID	
Finet Wheel D	00000000
Rear Wheel D	08005147
Select tire sensor D to be dead	ed.
Jertytte	Pear Wheel
	12070

Fig. 5-21 TPMD ID Deletion

- o Prepare a new TPMS sensor and record the ID.
 - ~ TPMS sensors cannot be registered without ID registration.
- o Replace the front TPMS sensor.
- o Select TPMS ID Registration on the KI-PASS Related Menu screen.
- o Fig. 5-22 appears, select Front Wheel.

Consul Digentic Spices	511
Starting registration of the TPMS sensor. Select the bie to be registered.	
Frizt Wheel	Pinar Wheel
	Robum.

Fig. 5-22 TPMD ID Registration

o When Fig. 5-23 appears, input the new TPMS ID and select **Registration**.

1 I I	Front Wheel D	0800	5163	>
•	Tire Air Pressure	2	4Fa	
Devisitution	i i i		Deter	

Fig. 5-23 TPMS ID Registration

o Fig. 5-24 appears, select Yes.

the second se	annan in anGananan 🔤
Starting reg Do you war	istration of front TPMS sensor ID. it to continue? No

Fig. 5-24 TPMS ID Registration

Tire Air Pro	essure Sensor ID Registration 🛛 🔀
Registered f	ront tire air pressure sensor ID.
	ок

Fig. 5-25 TPMS ID Registration

o Fig. 5-25 appears, select **OK**.

Fig. 5-26 appears.

o Select Return.



Fig. 5-26 TPMS ID Registration

 To confirm the new TPMS ID is registered correctly, go to **Real Time Monitor** screen (Fig. 5-27)

	10			
Service Data		Values	Units	ľ
Fully registered	Immobilizer key number	2	Pieces	
Temporary FOB	number	0	Pieces	
Fully registered	FOB number	3	Pieces	
FOB number is	registerable	3	Pieces	
TPMS Front Tire	Air Pressure		mmHg	
TPMS Rear Tire	Air Pressure		mmHg	
Received TPMS	ID	00000000		
Status of steering	ig lock	Unlock		
TPMS Front ID	Distance.	08005163		
TPMS Rear ID		08005147		
Received TPMS	pressure	0.00	mmHa	

Fig. 5-27 Registration Confirmation

5.5 Fob Registration

To register an additional fob or to re-register an existing fob:

NOTE

~ The maximum number of fobs that can be registered is 6. The motorcycle comes with 2, and an additional 4 can be registered. A fob's memory slot in the Smart ECU cannot be erased.

5.5.1 Additional Fob Registration

o Select **Fob Registration** on the KI-PASS Related Menu (Fig. 5-28).

I-PASS Related Menu	
KI-PASS ECU Part Fuel frection ECU Part Steering took ECU Part	Aurose: 21175-0127 Aurose: 21175-0117 Aurose: 27006-0038
Unit Registration	Introbitizer Key Registration
FOB Registration	Tire Air Presture Sensor ID Registration
Diagnosis	Tire Air Pressure Sensor ID Dekition
	Real Time Monitor
	Diam

Fig. 5-28 KI-PASS Related Menu Screen

- o Current information is displayed (Fig. 5-29).
 - Two fobs are registered to the Smart ECU during production.
- o Select **Additional Registration** if you want to register additional fobs.

Council Dispersific System			1 2
FOB Registration			
Starting FOB unit registration			
FOB recestration number	2	Pieces	
FOB number can be requitered	4	Pieces	
Addbonal Registration		Reregistration	
		Return	

Fig. 5-29 Fob Registration Screen

- Fig. 5-30 appears.
- o Input the new fob ID, then select **Additional Registration** with the new fob placed close to the Smart ECU.

NOTE

~ The new fob's ID is located on the shipping package.

Koussiel Disperific Sprines			
Additional FOE registration Input the new FOE ID to be registered. Set then select Additional Registration	the new FOB on the sec	e.	
2 -	10°E1A	-	
0.1	and the second s		

Fig. 5-30 Fob Registration

Additional Fob Registration	
Registered new Fob.	
ОК	

Fig. 5-31 Fob Registration

Fig. 5-32 appears.

Fig. 5-31 appears. o Select **OK**.

 Select Return if you are finished, or Additional Registration to register another fob.



Fig. 5-32 Fob Registration



Fig. 5-33 Additional Registration

Fig. 5-33 is a sample of an additional registration.

o Enter the fob's ID number and select Additional Registration.

Fig. 5-34 appears.

o Select Return if completed.



Fig. 5-34 Additional Registration

5.5.2 Fob Re-registration

Select Re-registration (Fig. 5-34). Select
 OK (Fig. 5-35). In this example there are 3 fobs.



Fig. 5-35 Re-registration

o Fig. 5-36 appears confirming the number of fobs, select **Yes**.

FOB Registration	×
Confirmed r (Confirmed Are you rea	nore than one FOB FOB number : 3 Pieces) dy to register?
Yes	No

Fig. 5-36 Re-registration

Fig. 5-37 appears.

o Select Return if completed.



Fig. 5-37 Re-registration

5.6 Immobilizer Key Registration (Smart ECU Replacement)

To register the Immobilizer keys supplied with a new Smart ECU:

o Select **Immobilizer Key Registration** on the KI-PASS Related Menu (Fig. 5-38).



Fig. 5-38 KI-PASS Related Menu

Fig. 5-39 appears.

o Select Immobilizer Key Registration.

 Remove the key from the fob. Place the fob's cutout (where the head of the key was located) over the projection in front of the

ignition switch (See Fig. 5-41).



Fig. 5-39 Immobilizer Key Registration

Fig. 5-40 appears.

Description interest.	Orderstar have	
Registered H During Immobil	ey Number(Temporally Regultration + 1) 1 Iszer key close to key cylinder	

Fig. 5-40 Immobilizer Key Registration



Fig. 5-41 Location of Key

Fig. 5-42 appears, select OK.



Fig. 5-42 Key Registration OK

A confirmation screen will appear. (Fig. 5-43).

o To register more fobs, repeat the procedure. When Fig. 5-41 appears, select **OK**. Keenal (Nagonik System
 Immobilizer Key Registration
 Start Immobilizer Key Registration
 Registered Key Namber (Confirmation)
 Registered Key Namber (Confirmation)
 Immobilizer Key Registration
 Maximum of 6
 keys)
 Confirm charged team
 Resure

Fig. 5-43 Updated Immobilizer Key Registration

Fig. 5-44 appears.

o When all fobs have been registered, select **Confirm changed item**.

Immobilizer Key Registration		
Start Immobilizer Key Registration		
Registered Key Number (Continuation)	2	Pieces
Registered Key tautiber (Temporally	2	Pieces (Key Registration Maximum of 6 levys)
Immobilizer Key Registration -		Confirm charged thim
		Return

Fig. 5-44 Confirmed Key Registration

Fig. 5-45 appears o Select **Yes**.



Fig. 5-45 Key Registration

Immobilizer Key Registration 🔀	ľ
Confirmed	
ок	

Fig. 5-46 Confirmation

Fig. 5-46 appears. o Select **OK**.

Fig. 5-47 appears.

o Select Return to complete the process.

mmobilizer Key Registration	
Batt Immobilitier Key Registration	
Registered Key Number (Continuation)	2 Pieces
Registered Key Number (Temporally	 Pieces (Ney Registration Maximum of 6 keys)
Immobilizer Key Registration	Delive Democratic
	Return

Fig. 5-47 Confirmation

5.7 FI ECU Replacement

To replace the FI ECU:

o Select **Unit Registration** on the KI-PASS Related Menu. (Fig. 5-48).

kLPASS ECU Part N Fuel Injection ECU Part N Steering lock ECU Part N	lander: 21175-0127 lander: 21175-0117 lander: 27006-0038
Linit Registration	Immobilizer Key Registration
FOB Regultration	Tire Air Pressure Sensor ID Registration
Diagnoses	Tire Ar Pressure Sensor D Deletion
	Real Time Montor

Fig. 5-48 KI-PASS Related Menu

o Select **FI ECU**, then select **Registration** (Fig. 5-49).

Consult Higgentic Sprine		5 F 23
Select unit to be registered, then select th	e Registration	
17 Steering Lock Unit. 14 FLECU		
Registration		Return

Fig. 5-49 FI ECU Selection

Fig	g. 5-50 appears.
0	Select Yes.

Unit Registration			
2	Starting to Turn on the Continue?	register FI ECU. ignition switch.	
	Yes	No	

Fig. 5-50 FI ECU Selection

Unit Registration
FI ECU Registration correct
ОК

Fig. 5-51 FI ECU Registration

Fig. 5-51 appears. o Select **OK**.

Fig. 5-52 appears.

o Select Return.

General Higgs	atte Spatiena	
elect unit to be	registered, then select the Registratio	á.
IT Steering I	Look Unit.	
	The second se	Fature

Fig. 5-52 FI ECU Registration

Fig. 5-53 appears. o Select **OK**. This completes the registration process.



Fig. 5-53 ECU Registration

5.8 Steering Lock Unit (ECU) Replacement

To replace the Steering Lock ECU:

- o Replace the Steering Lock Unit.
- o Start KDS 3 and go to the Main Menu, but do not select any options yet.
- Depress the steering lock switch (do not turn switch). Select With Smart System within 10 seconds (Fig. 5-54).

Select whether webicle has Sesart system	
Name (prices and in ON damp, commercialize Nam (prices and in Or 4 year small har the grader and it. Or, using Note: Sourt for the grader local	mer with 11 access alte participit
Without Smart System	With Smort System
Without Smart System ABS	With Smart System

Fig. 5-54 KDS Main Menu

Fig. 5-55 appears.

o Select Steering Lock Unit Registration.



Fig. 5-55 Selection

KDS3		
2	Starting registration of the steering k Do you want to continue?	odk ECU.
	Yes No	

Fig. 5-56 Starting Registration

Fig. 5-56 appears.

o Select Yes.

Fig. 5-57 appears. o Select **OK**.



Fig. 5-57 Registration

Fig. 5-58 appears.

o Select OK.

Re-start KDS 3 and turn ON the vehicle.



Fig. 5-58 Registration Finished

5.9 Smart ECU Replacement

To replace the Smart ECU:

The Smart ECU is provided with two fob keys as a set.

- o Replace the Smart ECU.
- o Start KDS 3 and go to the Main Menu (Fig. 5-59), *but do not select any options yet*.
- After depressing the steering lock switch (do not turn switch), select With Smart System.
- o Register the steering lock unit as outlined in section 5.8.

Solact whether vehicle has Socart system	
Keen gefan solch Okdary, comunicator Tare gefan solch Ok I on solch Statt Segrifice solch Ok, solch Wei Sheef for Re gefan tool	mer whit 11 second alter participit
Without Smart System	With Smert System
Without Smart System ABS	With Smart System

Fig. 5-59 KDS Main Menu

- o On completion of this procedure KDS 3 will close.
- o Confirm the release of the steering lock by pushing the switch ON.
- o Confirm meter operation by turning on the ignition switch.
- o After turning the ignition switch ON, reconnect KDS 3 and register the Immobilizer Keys and TPMS sensors according to sections 5.6 and 5.4.

5.10 Smart System Parts Replace and KDS 3 Operation

No		Replace	ement P	arts			Remarks
	Steering Lock	Smart ECU	FI ECU	TPMS	Fob Key	KDS 3 Operation	
1	0	-	-	-	-	 ①Start KDS. ②Steering lock push-switch ON, then start communication. ③Register steering lock unit compulsory. ④KDS closes. After steering lock switch ON, confirm the release of steering lock. 	o Steering lock unit ID is necessary for Smart ECU registration.
2	-	0	-	-	0	 ①Start KDS. ②Steering lock push-switch ON, then start communication. ③Register steering lock unit compulsory. ④KDS closes. After steering lock switch ON, confirm the release of steering lock. ⑤Confirm meter initialization. ⑥Ignition switch ON, register immobilizer key and TPMS. 	 o Steering lock unit ID o FI-ECU ID o Immobilizer ID o TPMS ID
3	-	-	0	-	-	 Ignition switch ON, Start KDS. Register FI-ECU compulsory. After steering lock switch ON, confirm the release of steering lock. Confirm meter initialization. 	o FI-ECU ID
4	-	-	-	0	-	① Ignition switch ON, Start KDS.② Register TPMS sensor ID.	o TPMS ID
5	Ο	0	-	-	0	 ①Start KDS. ②Steering lock push-switch ON, then start communication. ③Register steering lock unit compulsory. ④KDS closes. After steering lock switch ON, confirm the release of steering lock. ③Confirm meter initialization. ⑥Ignition switch ON, register immobilizer key and TPMS. 	 o Steering lock unit ID o FI-ECU ID o Immobilizer ID o TPMS ID
6		ο	0	-	0	 ①Start KDS. ②Steering lock push-switch ON, then start communication. ③Register steering lock unit compulsory. ④KDS closes. After steering lock switch ON, confirm the release of steering lock. ③Confirm meter initialization. ⑥Ignition switch ON, register immobilizer key and TPMS. 	 o Steering lock unit ID o FI-ECU ID o Immobilizer ID o TPMS ID
7	0	-	0	-	-	 ①Start KDS. ②Steering lock push-switch ON, then start communication. ③Register steering lock unit compulsory. ④KDS closes. After steering lock switch ON, confirm the release of steering lock. ⑤Confirm meter initialization. 	 Steering lock unit ID FI-ECU ID
8	ο	0	o	-	0	 ①Put No.1 fob close to steering lock and push-switch ON. ②Registering immobilizer key, show "Registration OK", if not, show "Registration no good". ③ Put No.2 fob close to steering lock and push-switch ON. ④ If immobilizer key is registered successfully, automatically write the ID to steering lock ECU and display the mark which show ignition switch ON. ⑤ If ignition switch ON, write the ID to the FI-ECU, and initialize the Meter unit. 	 o Steering lock unit ID o FI-ECU ID o Immobilizer ID o TPMS ID
9	-	-	-	-	0	When all fob keys are lost, Smart ECU must be replaced. The same operation with No. 2 is necessary. When registering additional fob, minimum one available fob is necessary.	o New fob ID

Section 6: KDS 3 Operations for FI System

6.1 Starting KDS 3

- o Turn on the PC.
- Start KDS Version 3 from the start menu.
 Or double-click the KDS 3 icon on the desktop screen.



Fig. 6-1 KDS 3 icon

Fig. 6-2 will appear.

- o Read the instructions and perform the preliminary inspection.
- o Select **OK** after performing the preliminary inspection.



Fig. 6-2 Inspection

Fig. 6-3 will appear.

- ~ On Smart System equipped models, select With Smart System.
- ~ On non-Smart System equipped models, select Without Smart System.



Fig. 6-3 Main Menu

The KDS Main Menu and Model Information screen will appear (Fig. 6-4).

o Select Fuel Injection.

KDS Main Menu Model Information		(awasaki
Model	Model Year	Specification
ZG1400A8F ZG1400B8F	80' 80'	EUR WVTA(FULL H AU
E El Nuelle Al Nuel El Nuel IN Gray d'An T Ray d'An	ale (All grade (P) before a P betore () Change of the state of the second	21
Fuel Injection		KIPASS
Return		Ext

Fig. 6-4 KDS Main Menu and Model Information

FI ECU Related Menu will appear (Fig. 6-5).

- o Select one of the following:
 - ~ Real Time Monitor
 - ~ Actuator Tests
 - ~ Real Time Monitor (Graph)
 - ~ Diagnosis

FI ECU Related Menu	
Fail typiction ECU I	Fert Number: 21175-0117
Real Time Monitor	Real Time Monitor (Graphs)
Actuator Tests	Diagnosis
I have been provided with	
	Return

Fig. 6-5 FI ECU Related Menu

6.2 Real Time Monitor

Fig. 6-6 appears after selecting the **Real Time Monitor** on the FI ECU Related Menu. Component values and warning information from the ECU can be viewed on screen.

Up to 10 items can be displayed simultaneously, service data can be saved or printed.

171 (mar))			
Real Time Monitor			~
All Information			()
Engine Information Warning Information Monitoring Information			C
Engine Emergency	Stop	OFF	
Throttle Opening A	nale	0.67	V
Inlet Air Pressure		753	mmHg
Water Temperatur	e	22	C
Inlet Air Temperatu	re	23	C .
Atmospheric Press	ure	753	mmHa
Engine Speed		0	rpm
Battery Voltage		0.0	V
Gear Position		0	100
Vehicle Speed		0	km/h
See.	Print	Select	Return

Fig. 6-6 Real Time Monitor

6.2.1 Selecting Display Items

Select a group from the pull down menu (Fig. 6-6).
 Select Engine, Warning, Monitoring, or All Information.
 All Information includes Engine, Warning, and Monitoring.

o Click Select (Fig. 6-6).

Fig. 6-7 will appear.

On this screen, items can be selected and displayed for service information.

NOTE

- ~ Use the **space** key to check or uncheck each item for display purpose.
- Press the arrow keys (upward or downward) on the keyboard to move the items.
- o To confirm your selection, select **OK** or press the **Enter** key. To return to the previous selection, select **Cancel**.

Fig. 6-8 is a sample of **All Information**.

 Other items selected to be monitored can be seen by selecting the scroll button or moving the scroll bar.

Service Data	Units	11
Starter Switch		
Engine Emergency Stop		
E Throttle Opening Angle	V	
Elinlet Air Pressure	pHmm	
B Water Temperature	C	
Sinlet Air Temperature	C	
Atmospheric Pressure	pHmm.	
Engine Speed	rpm	
Battery Voltage	V	
Gear Position		
Ø Vehicle Speed	km/h	
Engine Stopped		
E Throttle Sensor Failure	times	
Inlet Air Pressure Sensor Failure	times	
Binlet Air Temp Sensor Fallure	times	
Water Temperature Sensor Failure	times	
Atmospheric Pressure Sensor Failure	times	

Fig. 6-7 Select Items

Ne principalité			
Service Data	Values	Linits	
Starter Switch	OFF	and the state of the	
Engine Emergency Stop	OFF		
Throttle Opening Angle	0.67	¥	
riset Air Pressure	753	mmHg	
Water Temperature	22	c	
niet Air Temperature	23	C	
Atmospheric Pressure	753	mmHg	
Engine Speed	0	rprit	-
Battery Voltage	0.0	V	(
Gear Position	0		
Vehicle Speed	0	km/h	
Engine Stopped	ON		
Throttle Sensor Falure	1	bres	
Inlet Air Pressure Sensor Failure	1	times	
niet Air Temp Sensor Faikze	1	bres	
Nater Temperature Sensor Faiture	1	times.	
Atmospheric Pressure Sensor Fallure	1	tries	
Fuel Pump #2 Failure	0	times	
Crankshaft Sensor #1 Failure	0	2mes	
Camshoft Sensor Falure	0	tries	(

Fig. 6-8 Real Time monitor

Selection of units

 Select View(V) located on the upper Tool Bar, then select Unit(U).

Fig. 6-9 appears.

- o Select units from pull down menu.
- o After confirming the units, select OK.

Once units are selected they will be applied to all displays.

Kawasaki Diagnostic Sy	stem 🔀
Select Units Temperature Pressure Speed	C mmHg mh
OK	Cancel

Fig. 6-9 Unit Selection

6.2.2 Saving Service Data

Data obtained through communication with the ECU can be saved.

o Select Save (Fig. 6-8).

Fig. 6-10 will appear.

- o Select an option and then select **OK**.
- o Enter comment then select OK (Fig. 6-11).



Fig. 6-10 Select Save Option

Insert your comment	
10/08/07 2G 1400A8F 005024	

Fig. 6-11 Comment (sample)

Fig. 6-12 appears.

 Select a folder and press Enter or Save to save the data under a CSV file.
 The file name by default will consist of YY(year)MM(month)DD(day) and two incremental numeric digits (00-99). ECU Parts No., Model Name, Model Year, and Specification are saved automatically in the data.

NOTE:

CSV: comma separated value

o A message will appear after saving the file. Select **OK**.

lave As	100				2 🕅
Seet	0 101 3 684	5m	+ 81.07	D:	
Id					
Desites					
My Damas					
Sale and the second					
-	fielder.	2007005_149521.cm		E	See
Places	Tenacipe.	(Chi film Front)		19/2	David

Fig. 6-12 Save Folder (sample

KDS3	
٩	Saved file
	ж

Fig. 6-13 Saving Completed

6.2.3 Printing

All or selected data from the ECU can be printed.

By Clicking Print at Fig. 6-8, Fig. 6-14 appears.

- o Select a print option and select OK to print.
 - ~ If a printer is not connected to the PC, a screen print will be created.
- o Select **Cancel** to return to the previous screen.



Fig. 6-14 Print Option

6.3 Diagnosis

- o Select **Diagnosis** on the FI ECU Related Menu. (Fig. 6.5).
- o If there are no failures, the message **No** service codes exist appears.
- o If a failure exists, it will be listed.

Note

- Five items or less can be displayed at a time.
- Select the scroll button to see the messages



Fig. 6-15 FI ECU Diagnosis

- o Select **Failure history** (Fig. 6-15) to see previous problems.
 - ~ Latest three records are shown.
 - On some models latest two records are shown.

Note

- From the pull down menu you can select Engine, Warning, Monitoring or All Information.
- Failure history can be saved and printed in the same way as the Real Time Monitor.

Failure history(FFD)			-
4 Information			-
Service Data	Values	Units	
Record 1: Engine Emergency Stop	OFF	10000	
Record 1: Throttle Opening Angle	0.60	V	
Record 1: Inlet Air Pressure	760	mmHg	
Record 1: Water Temperature	23	C	
Record 1: Inlet Air Temperature	24	C	
Record 1: Atmospheric Pressure	760	mmHg	
Record 1: Engine Speed	0	rpm	
Record 1: Battery Voltage	0.0	v	
Record 1: Gear Position	0		
Record 1: Vehicle Speed	0	km/h	
Record 1: Engine Stopped	ON		

Fig. 6-16 Failure history

6.4 Actuator Test

To perform an Actuator Test select **Actuator Tests** on the FI ECU Related Menu.

- o First, select Actuator Test item.
- o Second, select display items.
 - While the test is running, the parameter values will be displayed.
 - Up to five parameters can be displayed at a time. Click the scroll buttons to scroll by line.

Fast typed on ECU	JPatNumber: 21175-0117
Real Time Monitor	Real Time Monitor (Graphs)
Actuator Tests	Diagnosis
Internal proved present in prices	
	Enter

Fig. 6-17 FI ECU Related Menu

6.4.1 Selecting Test Item

Fig. 6-18 appears after **Actuator Tests** is selected.

o Select the test item from the pull down menu list.

NOTE

 Available actuator test items for each model are displayed on the screen.

et even Actuator Tests Exeloct Actuator Test Insector #1 Test	
Actuator Test Select Actuator Test Proceed #1 Test	
Select Actuator Test Injector #1 Test	
Insector #1 Test	0.0 sec
Solution at Test	
A mathematical statement	$\overline{\mathbf{U}}$
a rest	-
Jingector #3 1858	10
Fuel Pump Test	6
Signition Col #1 Test	
Eighton Coli #2 Test	
Signition Col #4 Test	
ESub-Throthe Actuator Test	
Usecond Air Scienced Test	-
WARRAND CONTRACTOR OF STREET	
Land of the street lifeting and street	
and the second h	L name 1
Stat	HISTATI

Fig. 6-18 Actuator test selection

6.4.2 Selecting Display Items

After selecting the actuator test item, select **Engine Information** in the combo box. The procedure is the same as **6.2.1**.

6.4.3 Injector Operation Test

- o Select Injector number to be tested
- o Select display items.
- o Run engine at idle speed.
- o Select Start to begin test (Fig. 6-19).



Fig. 6-19 Injector Test

o While the engine is running, monitor the change in Engine Speed (and listen to the engine).

Fig. 6-20 is a sample of the injector operation test.

Select Achaster Test	0.8 sec	
Engine Information		- 4
Service Data	Values	Units
Throttle Opening Angle	0.67	V
nlet Air Pressure	753	mmHg
Water Temperature	22	C
Inlet Air Temperature	23	C
Atmospheric Pressure	753	mmHg
Starting injector #1 test		

Fig. 6-20 Injector Test

Select Stop to finish testing. The test lasts for about 5 seconds and will stop automatically.

Fig. 6-21 shows the injector test has been completed.

Actuator Tests Salart Actuator Test		5.0 se	
Development rest.		÷	
Engrie Information			
Service Data	Values	Units	T
Throttle Opening Angle	0.67	V	
Inlet Air Pressure	753	mmHg	
Water Temperature	22	C	
Inlet Air Temperature	23	C	
Atmospheric Pressure	753	mmHg	
rejector #1 best finished			

Fig. 6-21 Test Completed

6.4.4 Fuel Pump Test

- o Select **Fuel Pump Test** from the pull down menu and select **OK**.
- o Select display items.
- o Make sure the engine is not running and select **Start**.

Fig. 6-22 is displayed when performing the test.

- o Listen carefully for the sound of fuel pump operation. If the operating sound is not heard, the fuel pump and/or its electrical circuit have failed.
- Select Stop to finish testing. The test lasts for about 5 seconds and will stop automatically.

Select Actuator Test.		3,0 sec
Fuel Pump Test		2
ingrie Information		
Service Data	Values	Units
Throttle Opening Angle	0.67	V
nlet Air Pressure	753	mmHg
Nater Temperature	22	C
nlet Air Temperature	23	C
Atmospheric Pressure	753	mmHg
darbing fuel pump test		

Fig. 6-22 Fuel Pump Test

6.4.5 Ignition Coil #No Test

- o Select Ignition Coil #No. Test from the pull down menu then select OK.
- o Select display items.
- o Make sure the engine is not running and then select Start.

NOTE

~ Before performing the Ignition coil test, remove the spark plugs from the cylinder head.

Fig. 6-23 is displayed during test.

- o Confirm spark at the plugs.
- Select Stop to finish testing. The test lasts for about 5 seconds and will stop automatically.

Actuator Tests		1.6 sec
Ignition Col #2 Test		
All Information		
Service Data	Values	Units
Throttle Opening Angle	0.67	V
Inlet Air Pressure	753	mmHg
Nater Temperature	22	C
Inlet Air Temperature	23	С
Atmospheric Pressure	753	mmHg

Fig. 6-23 Ignition Coil Test

6.4.6 Sub Throttle Valve Actuator Test

- o Select **Sub Throttle Actuator Test** from the pull down menu and select **OK**.
- Select display items.
 Sub Throttle Opening Angle should be selected for this test.
- o Make sure the engine is not running and then select **Start**.

Fig. 6-24 is displayed when performing the test.

Actuator Tests Select Actuator Test Sub-Throthe Actuator Test	1.0 sec
Actuator Tests Select Actuator Test Sub-Throthe Actuator Test	1.0 sec
Select Actuator Test	2
Sub-Throtte Actuator Test	2
Founda Information	
Profession and a second s	
Service Data Value	es Units
Vehicle Speed 0	km/h
Engine Stopped ON	
Sub-Throttle Opening Angle 4.21	V
Vehicle-Down Sensor Voltage 4.0	V
Engine Starting Mode OFF	

Fig. 6-24 Sub Throttle Actuator Test

o Monitor the voltage of the Sub Throttle Actuator Opening Angle (and listen for the sound of actuator operation).

If the Voltage goes above 3.8 volts, the actuator is operating correctly. Refer to the data in the service manual.

Select Stop to finish testing. The test lasts for about 5 seconds and will stop automatically

6.4.7 Second Air Solenoid Test

- o Select Second Air Solenoid Test and select OK.
- o Select Display Items.
- o Make sure the engine is not running and then select Start.

Fig. 6-25 is displayed when performing the test.

- Listen for the sound of solenoid operation.
 If the operating sound is not heard, the solenoid or it's circuit has failed.
- Select Stop to finish testing. The test lasts for about 5 seconds and will stop automatically.

Select Actuator Test		3.1 sec
Second Air Solenoid Test		4
Engine Information		
Service Data	Values	Units
Water Temperature	22	C
Inlet Air Temperature	23	С
Atmospheric Pressure	753	mmHg
Engine Speed	0	rpm
Battery Voltage	0.0	V

Fig. 6-25 Second Air Solenoid Test

6.4.8 OCV Solenoid Test

- o Select OCV Solenoid Test and then select OK.
- o Select display items.
- o Make sure the engine is not running and then select Start.

Fig. 6-26 is displayed when performing the test.

o Listen for the sound of solenoid operation.

If the operating sound is not heard, the solenoid or it's circuit has failed.

 Select Stop to finish testing. The test lasts for about 5 seconds and will stop automatically

Actuator Tests Select Actuator Test		3.8 set	
OCV Solutions Test			•
Engine Information			
Service Data	Values	Units	1
Water Temperature	22	С	1
Inlet Air Temperature	23	С	
Atmospheric Pressure	753	mmHg	
Engine Speed	0	rpm	
Battery Voltage	0.0	V	

Fig. 6-26 OCV Solenoid Test

6.5 Real Time Monitor (Graph)

The graph operates while the engine is running.

Parameter values from the ECU will be shown on the graphs.

Up to three graphs can be displayed and drawn for up to twenty seconds. They are drawn by scrolling point by point.

Simultaneously, numerical values are displayed on screen.

6.5.1 Graph Display Items Selection

Select Real Time Monitor (Graph) from the FI ECU Related Menu, then Select.

Fig. 6-27 appears.

- o Select the item(s) on the pull down menu, then **OK** or press the **Enter** key to confirm.
- o Select Cancel to stop.



Fig. 6-27 Selecting Items

6.5.2 Displaying Graphs

- o Select Start to display the graphs.
- o Select Stop to stop.

NOTE

~ When displaying the graphs, the **Start** button changes to a **Stop** button.



Fig. 6-28 Graph (sample)

6.5.3 Printing

- o After selecting **Print**, Fig. 6-29 will appear.
- Select the start time, and then select OK to begin printing. (Print size: A4).
 Select Cancel to stop printing and return to the original screen.



Fig. 6-29 Printing Graph

o When printing has finished, the completion screen appears. Select **OK**.



Fig. 6-30 Printing Completed

Section 7: KDS for ABS System

7.1 Outline

KDS for ABS has been developed as an optional function of KDS 3.

This software can be used on models equipped with ABS, such as the EX650B, ER650B, ZX1400B, and ZG1400A.

7.2 Installing the Software

The software is installed at the same time as KDS Version 3 and the icon will be visible on the desktop screen, as in Fig. 7-1.



7.3 Connection of the Cable

Fig. 7-2 shows a sample connection of KDS for ABS.



Fig. 7-2 Sample connection of KDS-ABS system

- A: Personal Computer (PC)
- B: USB cable
- C: Converter (57001-1648)
- D: Communication cable (6-pin/8-pin cable (57001-1649))
- E: 8-pin connector to main harness F: ABS ECU

7.3.1 ZG1400A

- o Remove seat.
- o Locate the 8-pin connector [A] on the main harness and remove the cover (ABS port).
- o Connect cable 57001-1649 [B] to the 8-pin ABS port.
- o Connect the 6-pin connector on the 57001-1649 to the Adapter [C].
- o Connect the computer's USB cable [D] to the Adapter.



Fig. 7-3 ABS Port on ZG1400A

7.3.2 ER650B/EX650B

- o Remove seat.
- o Remove the ABS Port [B] cover.
- o Connect the 8-pin connector on 57001-1649 to the ABS port.
- A. Diagnostic Port for KDS (4-pin port)
- B. Diagnostic Port for ABS (8-pin port)



Fig. 7-4 ABS Port on ER650B

7.3.3 ZX1400B

- o Remove seat.
- o Remove the ABS Port [B] cover.
- o Connect the 8-pin connector on 57001-1649 to the ABS port.
- A. Diagnostic Port for KDS (4-pin port)
- B. Diagnostic Port for ABS (8-pin port)



Fig. 7-5 ABS Port on ZX1400B

7.4 Menu Structure

The menu structure diagram is shown in Fig. 7-6.



Fig. 7-6 ABS Structure

7.5 Operation

7.5.1 Starting KDS for ABS

- o Turn on the PC.
- Start KDS Version 3 from the start menu.
 Or double-click the KDS 3 icon on the desktop screen.
- o Go to Main Menu (Fig. 7-7).
- o Select ABS.

Resp grown could third any consumation from grown models (Nr 2 you cannot four the grown coulds) (Dr, salest "We Sever Ser des grown stat.	daa" offici 13 onusisis sika pusha	
Without Smart System	We S	imat System
A85	Ext	



- o Next the **ABS Current Failure** screen appears. (Fig. 7-8.)
 - ~ If there are no failures, the message **No** service codes exist appears.

Research Display to Spring	
ABS Current failure	ARS ECU Part Norther 1920-002
No service codes exist	
1	22120
Fleensberchalture	Return.

Fig. 7-8 Current Failure – No Code

o If a failure exists, it will be listed (Fig. 7-9).



Fig.7-9 Current Failure - Code

o After repairing the failure, restart KDS-ABS.

Fig. 7-10 will appear.

o Confirm **No service codes exist**, then select **Intermittent failure** to see if there are any codes.



Fig. 7-10 Current Failure

The ABS Intermittent failure screen will appear
(Fig. 7-11).



Fig. 7-11 Intermittent Failure

- To erase the intermittent failure codes, select Erase Stored Service Codes (Fig. 7-11).
- o Select Yes, then select OK (Fig. 7-12).
- Confirmation the ABS Intermittent failure has been erased is shown on screen (Fig. 7-13).

After confirming, select **Return** to finish.

KDS3 🔣	KDS 3	
(Q) Clear all service codes?	٠	Erase finished
Yes No		ок

Fig. 7-12 Erase procedures

Kawataki Diagontic Sydam	
ABS Intermittent failure	ABS ECU Part Number 19082-0021
No service codes exist	
•	
Erase Stored Service Codes	Flettam

Fig. 7-13 Erase Confirming



Doc. No. 99929-0154-01