SUZUKI

AN400/A/ZA

SUPPLEMENTARY SERVICE MANUAL

USE THIS MANUAL WITH:
AN400 SERVICE MANUAL (99500-34100-01E)

99501-34170-01E

FOREWORD

This SUPPLEMENTARY SERVICE MANUAL is a supplement to SUZUKI AN400 SERVICE MANUAL.
It has been prepared exclusively for the following applicable model.

Applicable model:
AN400/A/ZAK9

This supplementary service manual describes only service information which differ from that of the main manual. Therefore, whenever servicing the above applicable model, consult this supplement first. And for any section, item or description not found in this supplement, refer to the main manual below.

Main Manual:

Manual Name	Manual No.
AN400K7 SERVICE MANUAL	99500-34100-01E

Other information considered as generally known is not included.
Read the GENERAL INFORMATION section to familiarize yourself with the motorcycle and its maintenance. Use this section as well as other sections to use as a guide for proper inspection and service.
This manual will help you know the motorcycle better so that you can assure your customers of fast and reliable service.

** This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual motorcycle.*
** Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual motorcycle exactly in detail.*
** This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI motorcycles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.*

⚠ WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual.
Improper repair may result in injury to the mechanic and may render the motorcycle unsafe for the rider and passenger.

SUZUKI MOTOR CORPORATION

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NOTE

For the screen toned sections with asterisk (*) in the "TABLE OF CONTENTS" below, refer to the same sections of the service manual mentioned in the "FOREWORD" of this manual.

Section 00

Precautions

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NOTE

For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Precautions

Precautions

Precautions for ABS (AN400A/ZAK9)

B905H10000004

ABS Wiring

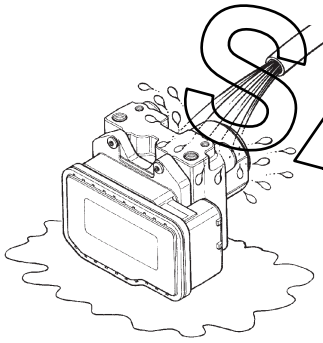
- The ABS parts are connected to various lead wires. The coupler and lead wire connections, as well as the lead wire and wire harness routings must be done correctly. Make sure that the proper clamps are used and positioned correctly.

NOTE

If all of the connections are not properly connected, the ABS may not operate correctly. For connector and coupler precautions. Refer to “Precautions for Electrical Circuit Service” in related manual.

ABS Control Unit/HU

- Never allow dust or water to contact the ABS control unit/HU.



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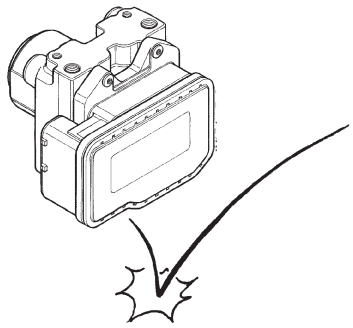
- Never subject the ABS control unit/HU to strong impacts or allow them to be dropped.



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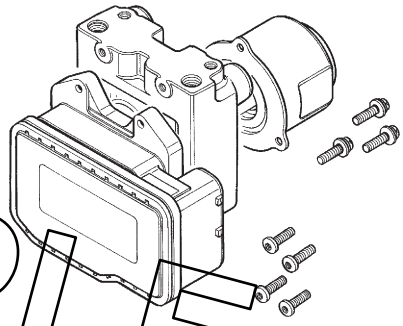
- The ABS control unit/HU cannot be disassembled. Replace the whole unit with a new one.



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Section 0

General Information

0

CONTENTS

NOTE

For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

General Information

General Description

Abbreviations (AN400A/ZAK9)

B905H10101013

NOTE

Please refer to the AN400K7 service manual for other abbreviations which are not given in this manual.

A:
ABS: Anti-lock Brake System

Vehicle Side View (AN400/A/ZAK9)

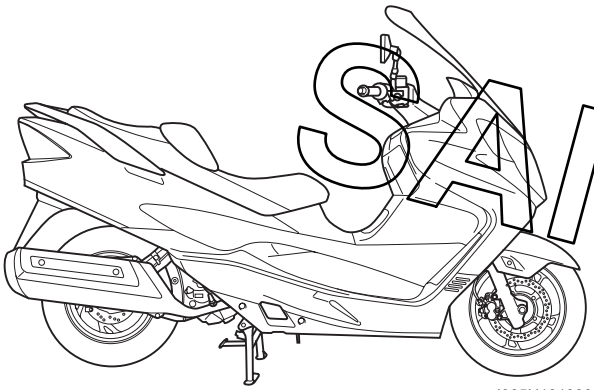
B905H10101014

NOTE

Difference between illustration and actual motorcycles may exist depending on the markets.

SUZUKI AN400 (2009-model)

Right Side



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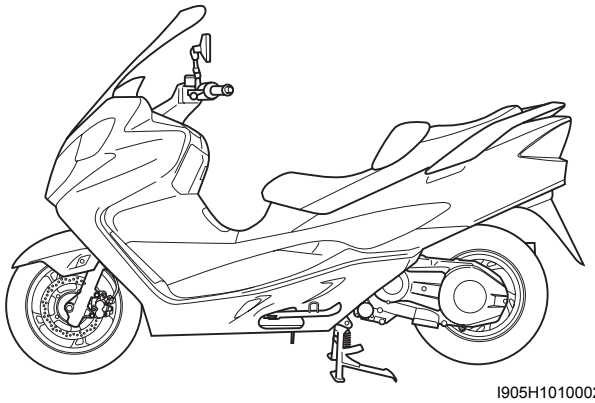
Left Side



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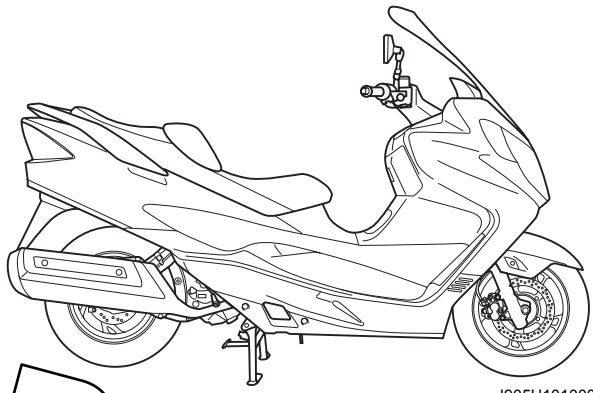
SUZUKI AN400A (2009-model)

Right Side



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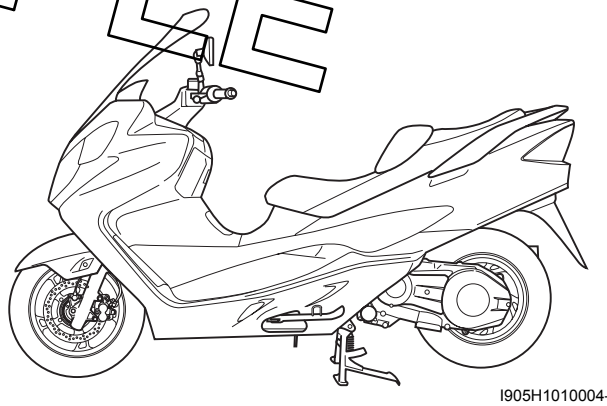
Left Side



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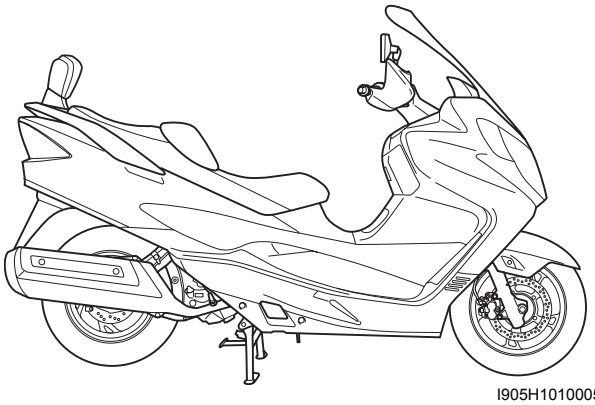
SUZUKI AN400ZA (2009-model)

Right Side



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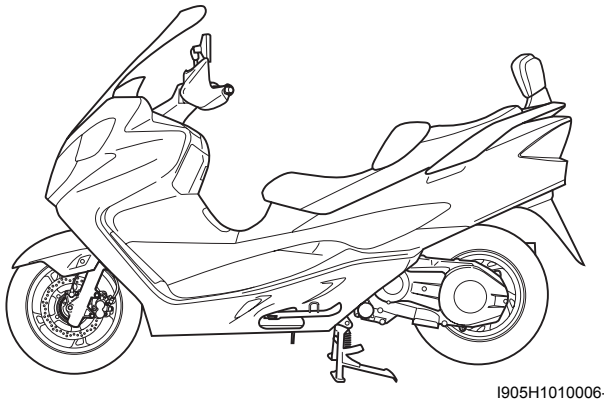
Left Side



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Country and Area Codes (AN400/A/ZAK9)

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The following codes stand for the applicable country(-ies) and area(-s).

Model	Code	Country or Area	Effective Frame No.
AN400 K9	E-02	U.K.	JS1CG111200100924 –
	E-03	U.S.A. (Except for California)	JS1CK44A 92100001 –
	E-19	E.U.	JS1CG111100135961 –
	E-24	Australia	JS1CG111300100360 –
	E-28	Canada	JS1CK44A 92100001 –
	E-33	California	JS1CK44A 92100001 –
	E-51	Korea	JS1CG111590100001 –
	E-54	Israel	JS1CG111490100001 –
AN400A K9	E-02	U.K.	JS1CG113200100001 –
	E-03	U.S.A. (Except for California)	JS1CK44B 92100001 –
	E-19	E.U.	JS1CG113100100001 –
	E-24	Australia	JS1CG113300100001 –
	E-28	Canada	JS1CK44B 92100001 –
	E-33	California	JS1CK44B 92100001 –
	E-54	Israel	JS1CG113490100001 –
AN400ZA K9	E-02	U.K.	JS1CG114200100001 –
	E-19	E.U.	JS1CG114100100001 –

Specifications

Specifications (AN400K9)

B905H10107003

NOTE

- **These specifications are subject to change without notice.**
- **Any differences between the AN400K8 (’08-model) and AN400K9 (’09-model) in specifications are indicated an asterisk mark (*).**

Dimensions and Curb Mass

Item	Specification	Remark
Overall length	2 270 mm (89.4 in)	
Overall width	760 mm (29.9 in)	
Overall height	1 385 mm (54.5 in)	
Wheelbase	1 585 mm (62.4 in)	
Ground clearance	125 mm (4.9 in)	
Seat height	710 mm (28.0 in)	
* Curb mass	216 kg (476 lbs)	

Specifications (AN400AK9)

B905H10107004

NOTE

- **These specifications are subject to change without notice.**
- **Any differences between the AN400K9 (’09-model) and AN400AK9 (’09-model) in specifications are indicated with an asterisk mark (*).**

Dimensions and Curb Mass

Item	Specification	Remark
Overall length	2 270 mm (89.4 in)	
Overall width	760 mm (29.9 in)	
Overall height	1 385 mm (54.5 in)	
Wheelbase	1 585 mm (62.4 in)	
Ground clearance	125 mm (4.9 in)	
Seat height	710 mm (28.0 in)	
Curb mass	* 223 kg (491 lbs)	E-33
	* 222 kg (489 lbs)	Others

Electrical

Item	Specification	Remark
Ignition type	Electronic ignition (Transistorized)	
Ignition timing	7° B. T. D. C at 1 450 r/min	
Spark plug	NGK: CR7E or DENSO: U22ESR-N	
Battery	12 V 32.4 kC (9 Ah)/10 HR	
Generator	Three-phase A.C. generator	
Main fuse	30 A	
Fuse	10/10/15/10/15/10 A	E-02, 19, 24, 54
	15/15/15/10/15/10 A	E-03, 28, 33
* ABS fuse	15/20 A	
Headlight	12 V 60/55 W (H4) + 55 W (H7)	E-02, 19, 24, 54
	12 V 60/55 W (H4) x 2	E-03, 28, 33
Position/Parking light	12 V 5 W x 2	E-02, 19, 24, 54
Position light	12 V 5 W x 2	E-03, 28, 33
Brake light/Taillight	12 V 21/5 W x 2	
License plate light	12 V 5 W	
Helmet box light	12 V 5 W	
Front turn signal light	12 V 27/8 W	E-03, 28, 33
	12 V 21 W	Others
Rear turn signal light	12 V 21 W	
Speedometer/Tachometer light	LED	
Coolant temperature meter light	LED	
Fuel level meter light	LED	
Turn signal indicator light	LED x 2	
High beam indicator light	LED	
Brake-lock indicator light	LED	
Oil change indicator	LCD	
Fuel injection warning light	LED	
Immobilizer indicator light	LED	E-02, 19, 24, 54
* ABS indicator light	LED	

Specifications (AN400ZAK9)

B905H10107005

NOTE

- **These specifications are subject to change without notice.**
- **Any differences between the AN400AK9 ('09-model) and AN400ZAK9 ('09-model) in specifications are indicated with an asterisk mark (*).**

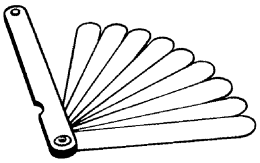
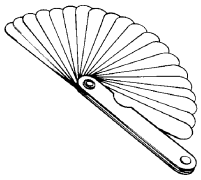
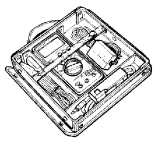
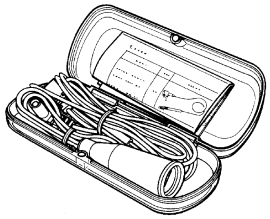
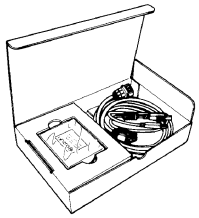
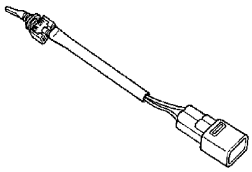
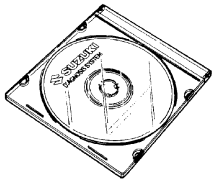
Dimensions and Curb Mass

Item	Specification	Remark
Overall length	2 270 mm (89.4 in)	
Overall width	* 825 mm (32.5 in)	
Overall height	1 385 mm (54.5 in)	
Wheelbase	1 585 mm (62.4 in)	
Ground clearance	125 mm (4.9 in)	
Seat height	710 mm (28.0 in)	
Curb mass	* 225 kg (496 lbs)	

Special Tools and Equipment

Special Tool

B905H10108002

 **09900–20803** Thickness gauge	 **09900–20806** Thickness gauge	 **09900–25008** Multi circuit tester set	 **09900–25009** Needle-point probe set	 **09904–41010** SUZUKI Diagnostic system set
 **09930–82710** Mode select switch	 **99565–01010–020** CD-ROM Ver.20			

Service Data

Specifications

Service Data (AN400K9)

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NOTE

Any differences between the AN400K8 ('08-model) and AN400K9 ('09-model) is service data are indicated an asterisk mark (*).

Clutch

Unit: mm (in)

Item	Specification	Limit
Clutch wheel I.D.	160 – 160.2 (6.30 – 6.31)	160.5 (6.32)
Clutch shoe thickness	5.0 (2.0)	2.0 (0.08)
Engage r/min	* 2 600 – 3 200 r/min	—
Lock-up r/min	4 000 – 5 000 r/min	—

Transmission

Unit: mm (in) Except ratio

Item	Specification	Note
Primary reduction ratio	1.000	—
Reduction ratio	2.200 – 0.839	
Secondary reduction ratio	2.214	—
Final reduction ratio	2.666	—
Drive V-belt width	25.1 (0.99)	24.1 (0.95)
Movable driven face spring free length	* 145.0 (5.7)	* 137.8 (5.43)
Movable drive face roller O.D.	26.00 – 26.16 (1.024 – 1.030)	—
Drive/driven face ware	—	0.4 (0.02)

Throttle Body

Item	Specification	
	E-02, 03, 19, 24, 28, 51, 54	E-33
I.D. No.	* 05H2	* 05H3
Bore size	38 mm (1.5 in)	←
Fast idle r/min	1 500 – 2 000 r/min	←
Idle r/min	1 450 ± 100 r/min	←
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)	←

Service Data (AN400A/ZAK9)

B905H10307004

NOTE

Any differences between the AN400K9 ('09-model) and AN400A/ZAK9 ('09-model) in service data are indicated an asterisk mark (*).

Electrical

Unit: mm (in)

Item	Standard / Specification			Note
Fuse size	Headlight	HI	10 A	E-02, 19, 24, 54
			15 A	E-03, 28, 33
		LO	10 A	E-02, 19, 24, 54
			15 A	E-03, 28, 33
	Meter		* 10 A	
	Ignition		* 15 A	
	Signal		15 A	
	Power source		10 A	
	Main		30 A	
	* ABS motor		20 A	
	* ABS valve		15 A	

Wattage

Unit: W

Item	Standard / Specification	
	E-02, 19, 24, 54	E-03, 28, 33
Speedometer/tachometer light	LED	←
Engine coolant temp. gauge light	LED	←
Fuel level gauge light	LED	←
Immobilizer indicator light	LED	←
Oil change indicator	LCD	←
FI indicator light	LED	←
Brake-lock indicator light	LED	←
High beam indicator light	LED	←
Turn signal indicator light	LED x 2	←
* ABS indicator light	LED	←

Brake + Wheel

Unit: mm (in)

Item	Standard		Limit
Brake disc thickness	Front	4.5 ± 0.2 (0.18 ± 0.008)	4.0 (0.16)
	Rear	5.0 ± 0.2 (0.20 ± 0.008)	4.5 (0.18)
Brake disc runout	—		0.30 (0.01)
Master cylinder bore	Front	* 14.000 – 14.043 (0.551 – 0.553)	—
	Rear	12.700 – 12.743 (0.500 – 0.502)	—
Master cylinder piston diameter	Front	* 13.957 – 13.984 (0.549 – 0.551)	—
	Rear	12.657 – 12.684 (0.498 – 0.499)	—
Brake caliper cylinder bore	Front	25.400 – 25.450 (1.000 – 1.002)	—
	Rear	27.00 – 27.05 (1.063 – 1.065)	—
Brake caliper piston diameter	Front	25.318 – 25.368 (0.997 – 0.999)	—
	Rear	26.918 – 26.968 (1.060 – 1.062)	—
Brake fluid type	DOT 4		—
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel axle runout	Front	—	0.25 (0.01)
	Rear	—	0.25 (0.01)
Wheel rim size	Front	14 M/C x MT3.00	—
	Rear	13 M/C x MT4.00	—

Tightening Torque List (AN400AK9)

B905H10307005

NOTE

Please refer to the AN400K7 service manual for other tightening torque which are not given in this manual.

Engine

Item		N·m	kgf-m	lbf-ft
Main gallery plug	M10	18	1.8	13.0

Chassis

Item	N·m	kgf-m	lbf-ft
Brake pipe flare nut	16	1.6	11.5
Wheel speed sensor rotor bolt (Front & Rear)	6	0.6	4.5

Section 1

Engine

CONTENTS

NOTE

For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Engine Mechanical

Schematic and Routing Diagram

Throttle Cable Routing Diagram (AN400/A/ZAK9)

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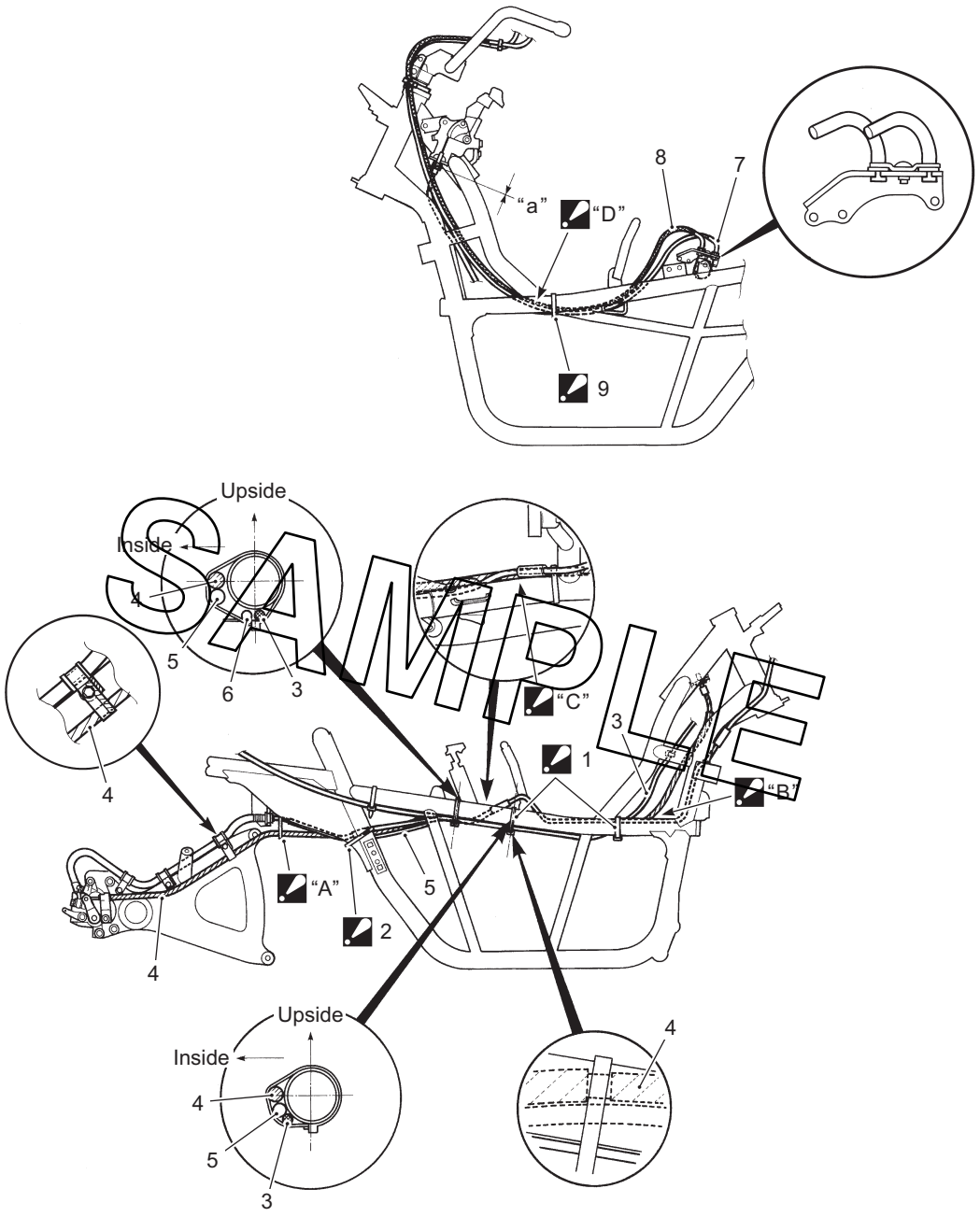

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1. Clamp : Bind the parking brake cable, starter motor lead wire and seat-lock cable with the clamp.	8. Throttle cable No. 2
2. Clamp : Bind the parking brake cable and starter motor lead wire with the clamp.	9. Clamp : Clamp the throttle cable at white taping point.
3. Seat-lock cable	"A": Pass the parking brake cable into the guide.
4. Parking brake cable	"B": Pass the parking brake cable inside of the brake hose.
5. Starter motor lead wire	"C": Pass the parking brake cable under the brake pipe. Do not slacken the parking brake cable.
6. Brake pipe	"D": Pass the throttle cable No. 2 over the throttle cable No. 1. Pass the throttle cables inside of the wiring harness.
7. Throttle cable No. 1	"a": 0 mm (0 in)

Repair Instructions

Engine Bottom Side Assembly (AN400/A/ZAK9)

B905H11406036

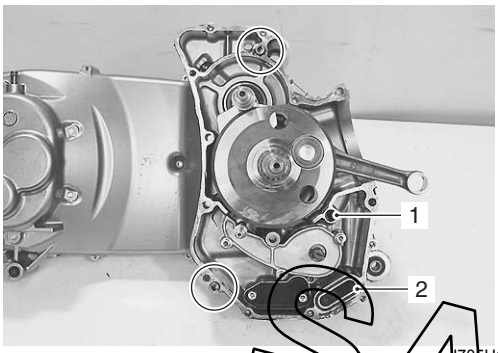
For engine bottom side assembly other than the following, refer to “Engine Bottom Side Assembly” in related manual.

Crankcase

- Install the O-rings (1) and (2).
- Install the dowel pins.

⚠ CAUTION

Replace the O-rings with the new ones.



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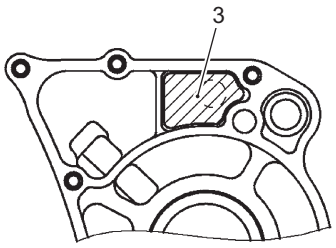
- Install the oil breather separator (3) to the left crankcase.



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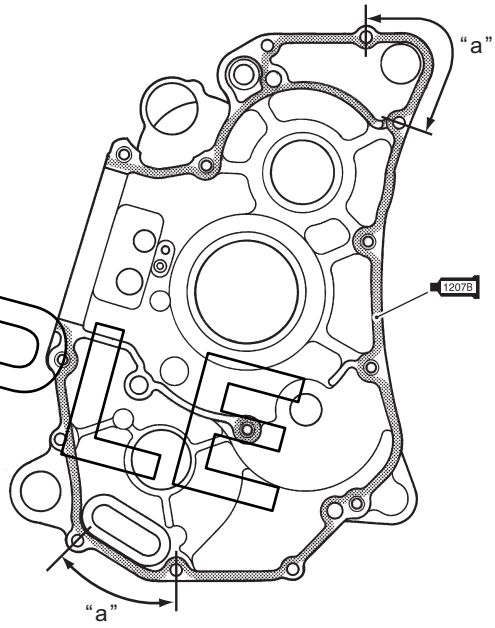
- Clean and degrees the crankcase mating surfaces (both surfaces) with a cleaning solvent.
- Apply bond to the right crankcase and part “a” of the left crankcase.

1207B : Sealant 99000–31140 (SUZUKI BOND No.1207B or equivalent)

⚠ CAUTION

- **Coat the sealant evenly without break.**
- **Application of sealant must be performed within a short period of time.**
- **Take extreme care not to let sealant enter into the oil passages or bearings.**



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- Tighten the crankcase bolts to the specified torque.

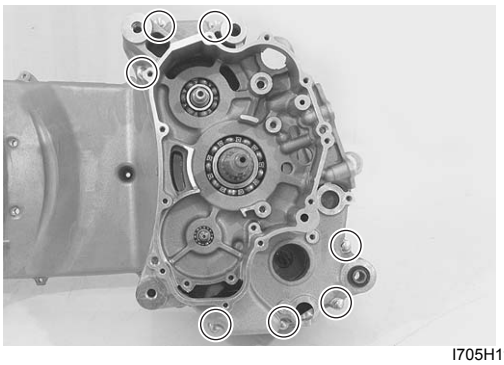
Tightening torque
Crankcase bolt (M6): 11 N·m (1.1 kgf-m, 8.0 lbf-ft)
Crankcase bolt (M8): 22 N·m (2.2 kgf-m, 16.0 lbf-ft)

⚠ CAUTION

Tighten the larger diameter crankcase bolts first and then smaller ones diagonally and evenly.

NOTE

After crankcase bolts have been tightened, check it crankshaft rotate smoothly.



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I705H1140102-01

Specifications

Tightening Torque Specifications

B905H11407002

Fastening part	Tightening torque			Note
	N·m	kgf-m	lbf-ft	
Crankcase bolt (M6)	11	1.1	8.0	☞(Page 1D-3)
Crankcase bolt (M8)	22	2.2	16.0	☞(Page 1D-3)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

Special Tools and Equipment

Recommended Service Material

B905H11408001

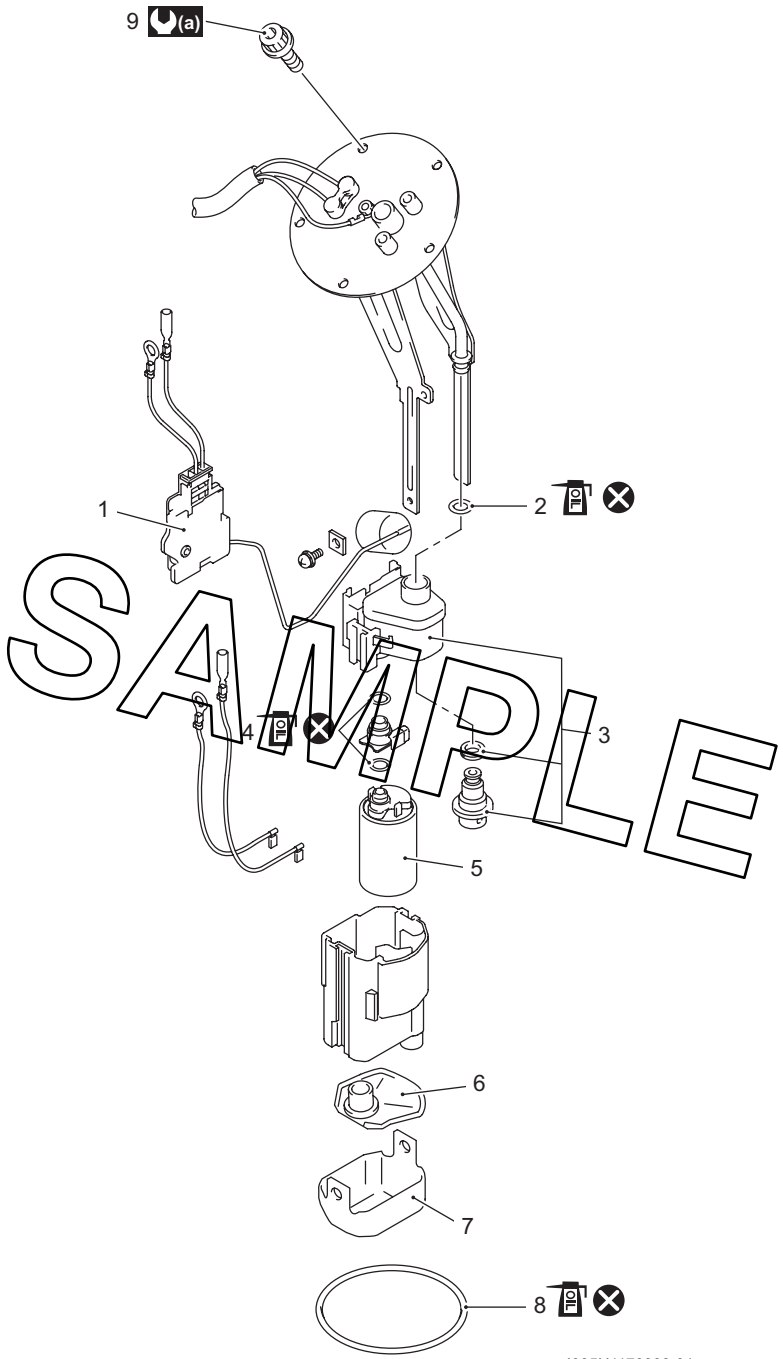
Material	SUZUKI recommended product or Specification		Note
Sealant	SUZUKI BOND No.1207B or equivalent	P/No.: 99000–31140	☞(Page 1D-2)

Fuel System

Repair Instructions

Fuel Pump Components (AN400/A/ZAK9)

B905H11706017



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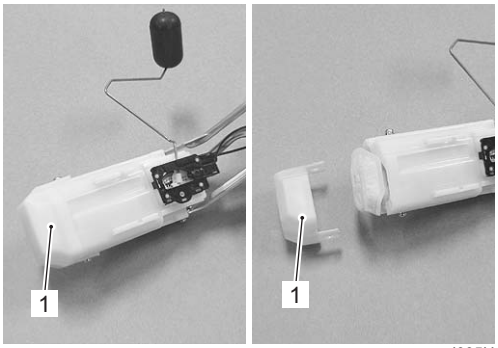
1. Fuel level gauge	5. Fuel pump	9. Fuel pump mounting bolt
2. O-ring	6. Fuel mesh filter	(a) : 10 N·m (1.0 kgf-m, 7.0 lbf-ft)
3. Fuel pressure regulator assembly	7. Dust cover	: Apply engine oil.
4. O-ring	8. O-ring	: Do not reuse.

Fuel Pump Disassembly and Assembly (AN400/A/ZAK9)

B905H11706018

Disassembly

1) Remove the fuel pump assembly.
   Refer to “Fuel Pump Assembly Removal and Installation” in related manual.
2) Remove the dust cover (1).



I905H1170002-01

3) For the other procedure, refer to “Fuel Pump Disassembly and Assembly” in related manual.

Assembly

Assemble the fuel pump assembly in the reverse order of the disassembly.
Refer to “Fuel Pump Disassembly and Assembly” in related manual.

Specifications

Tightening Torque Specifications

B905H11707002

NOTE

The specified tightening torque is described in the following.
“Fuel Pump Components (AN400/A/ZAK9)” (Page 1G-1)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

Special Tools and Equipment

Recommended Service Material

B905H11708003

NOTE

Required service material is also described in the following.
“Fuel Pump Components (AN400/A/ZAK9)” (Page 1G-1)

Section 2

Suspension

CONTENTS

NOTE

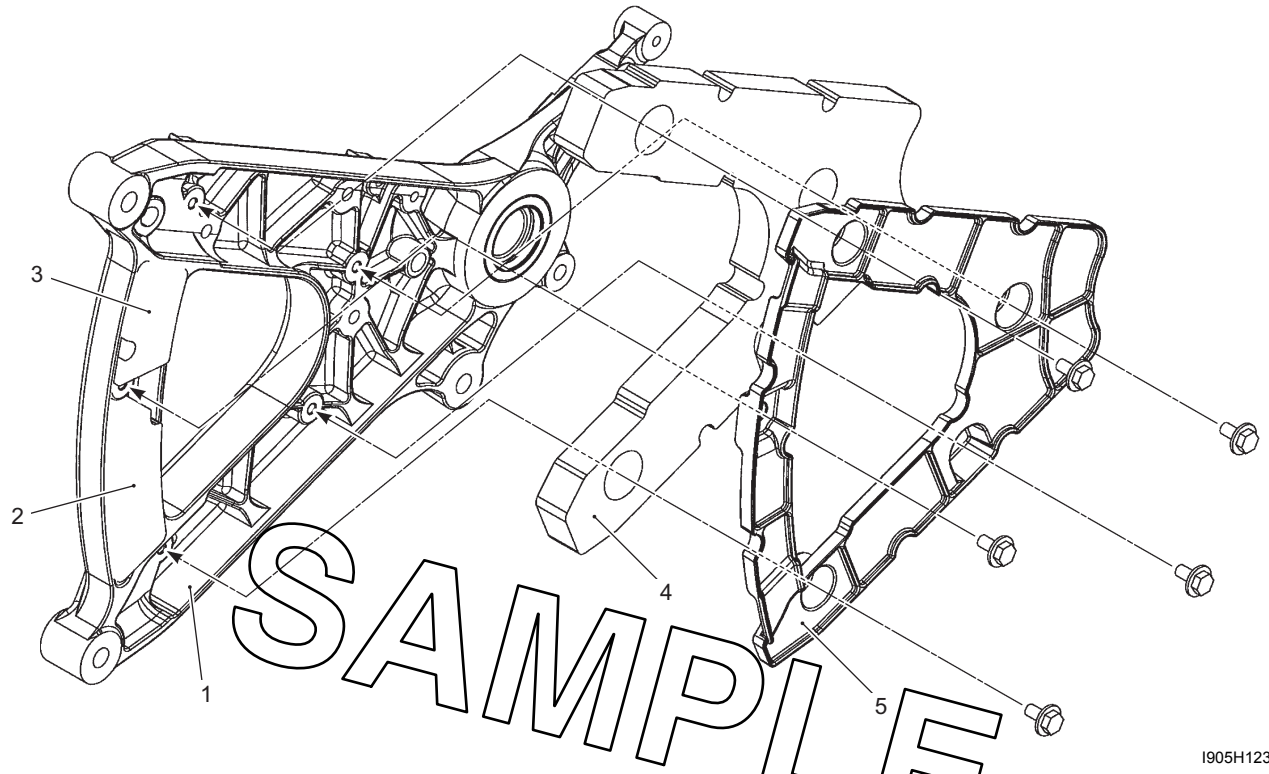
For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Rear Suspension

Repair Instructions

Rear Swingarm Construction (AN400/A/ZAK9)

B905H12306018



I905H1230001-01

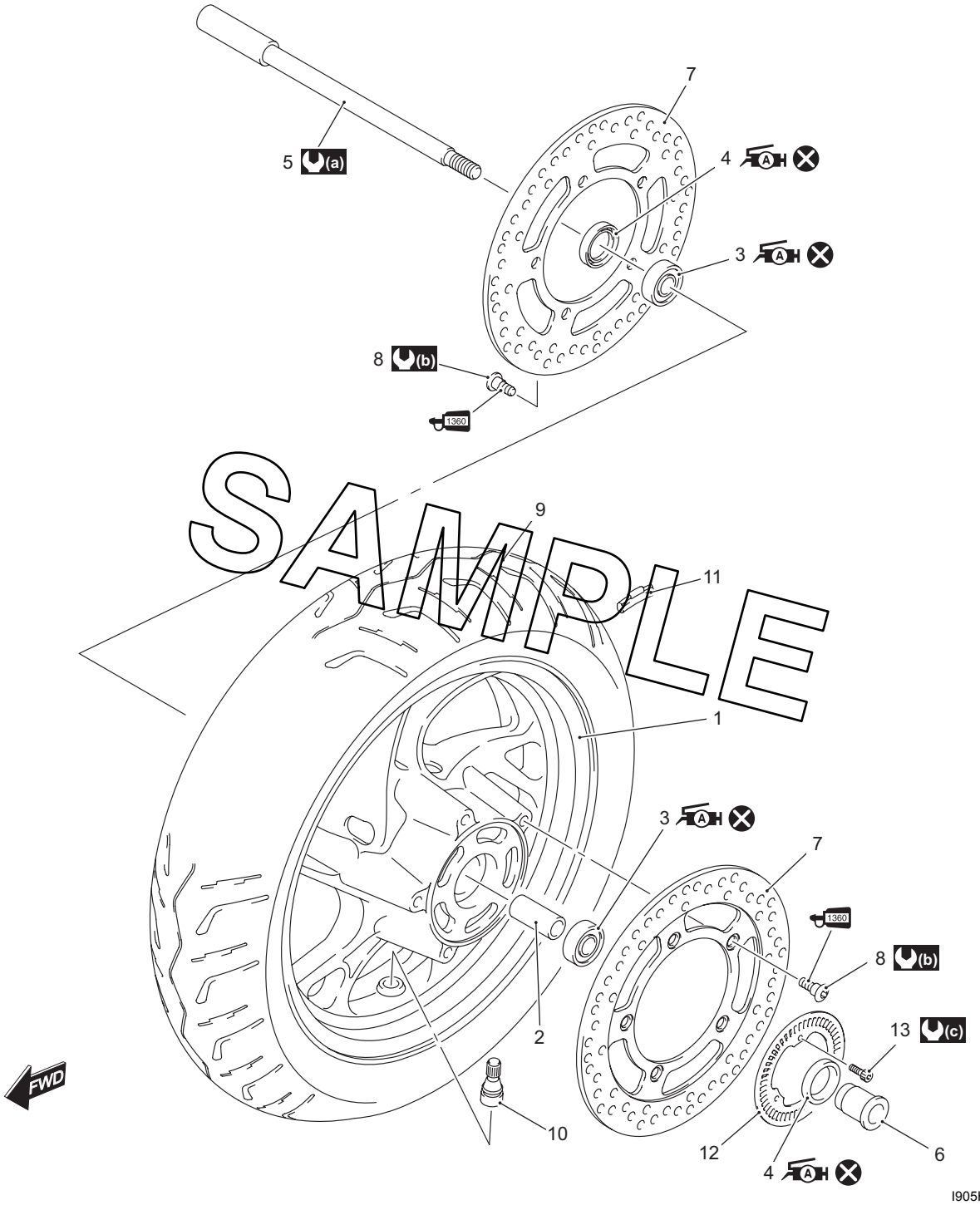
1. Rear swingarm	3. Swingarm cushion No. 2	5. Swingarm cushion cover
2. Swingarm cushion No. 3	4. Swingarm cushion No. 1	

Wheels and Tires

Repair Instructions

Front Wheel Components (AN400A/ZAK9)

B905H12406013

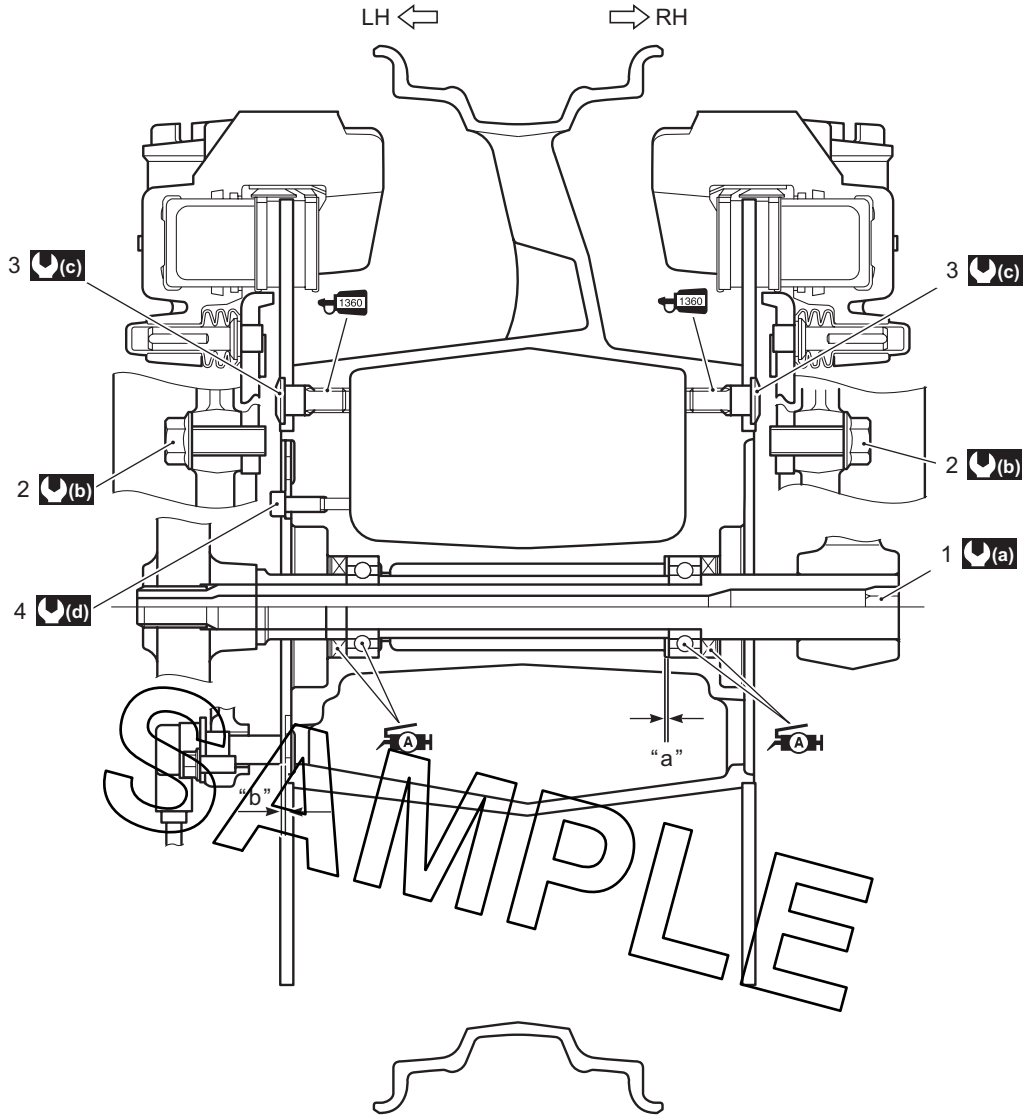


I905H1240001-02

1. Front wheel	6. Collar	11. Wheel balancer	(c) : 6 N·m (0.6 kgf-m, 4.5 lbf-ft)
2. Spacer	7. Brake disk	12. Wheel speed sensor rotor	A : Apply grease.
3. Bearing	8. Brake disk bolt	13. Wheel speed sensor rotor bolt	1360 : Apply thread lock to thread part.
4. Dust seal	9. Tire	(a) : 65 N·m (6.5 kgf-m, 47.0 lbf-ft)	: Do not reuse.
5. Front axle	10. Air valve	(b) : 23 N·m (2.3 kgf-m, 16.5 lbf-ft)	

Front Wheel Assembly Construction (AN400A/ZAK9)

B905H12406014



I905H1240010-02

1. Front axle	"a": Clearance	(c) : 23 N·m (2.3 kfg-m, 16.5 lbf-ft)
2. Front brake caliper mounting bolt	"b": 0.36 – 1.62 mm (0.014 – 0.064 in)	(d) : 6 N·m (0.6 kfg-m, 4.5 lbf-ft)
3. Front brake disc bolt	(a) : 65 N·m (6.5 kfg-m, 47.0 lbf-ft)	A : Apply grease.
4. Front wheel speed sensor rotor bolt	(b) : 35 N·m (3.5 kfg-m, 25.5 lbf-ft)	1360 : Apply thread lock to thread part.

Front Wheel Assembly Removal and Installation (AN400A/ZAK9)

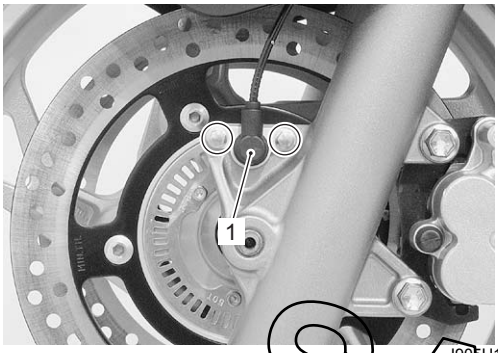
B905H12406015

⚠ CAUTION

- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **Do not hit the front wheel speed sensor rotor when dismounting the front wheel.**

Removal

1) Remove the front wheel speed sensor (1) by removing the mounting bolts.



I905H1240003-01

2) Remove the front wheel assembly (2). Refer to "Front Wheel Assembly Removal and Installation" in related manual.

I905H1240004-01

3) Remove the front wheel speed sensor rotor if necessary. Refer to "Front Wheel Speed Sensor Rotor Removal and Installation (AN400A/ZAK9)" in Section 4E (Page 4E-73).

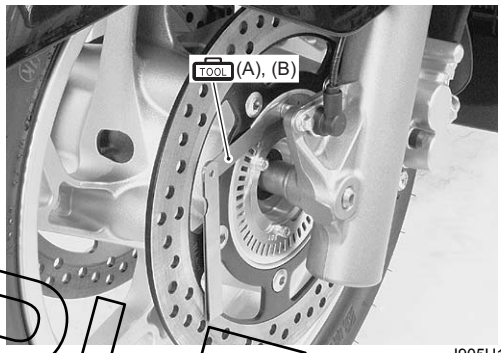
Installation

Refer to "Front Wheel Related Parts Inspection" in related manual.
Refer to "Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)" in Section 4E (Page 4E-74).
Install the front wheel assembly in the reverse order of removal. Pay attention to the following points:

- Install the front wheel assembly. Refer to "Front Wheel Assembly Removal and Installation" in related manual.
- Check the clearance between the front wheel speed sensor and sensor rotor.

Special tool
TOOL (A): 09900–20803 (Thickness gauge)
TOOL (B): 09900–20806 (Thickness gauge)

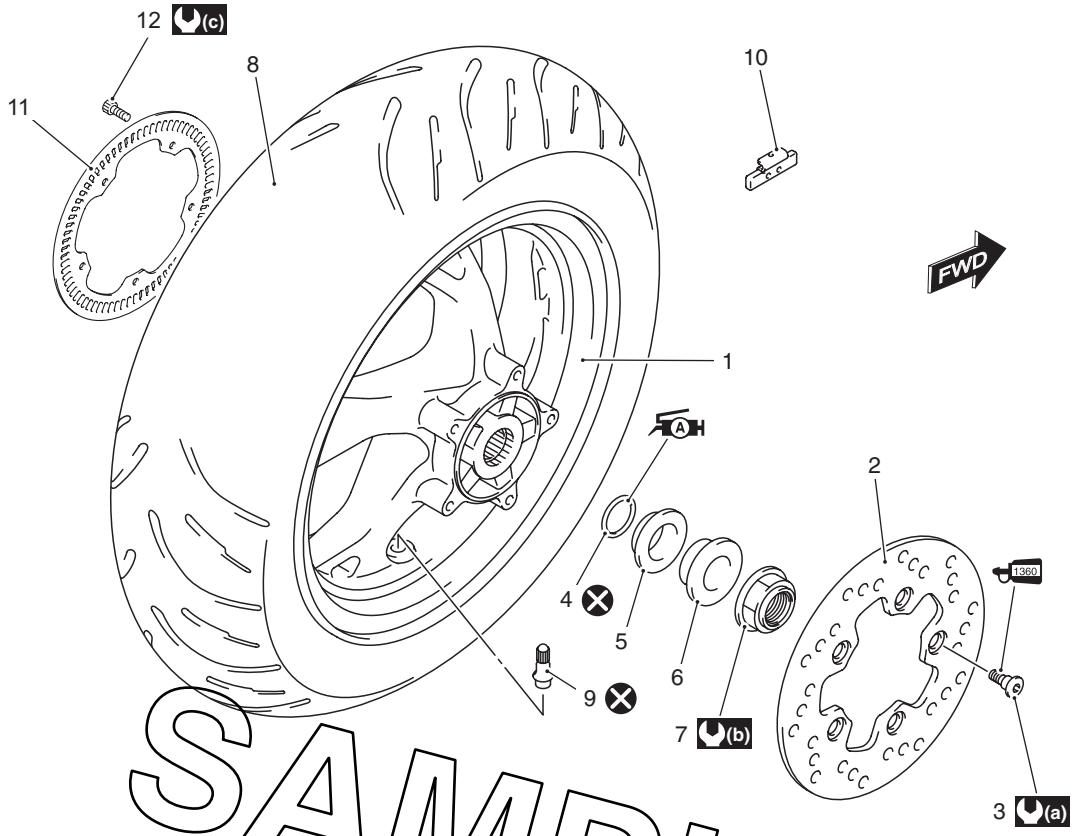
Wheel speed sensor – Sensor rotor clearance
0.36 – 1.62 mm (0.014 – 0.064 in)



I905H1240005-02

Rear Wheel Components (AN400A/ZAK9)

B905H12406016

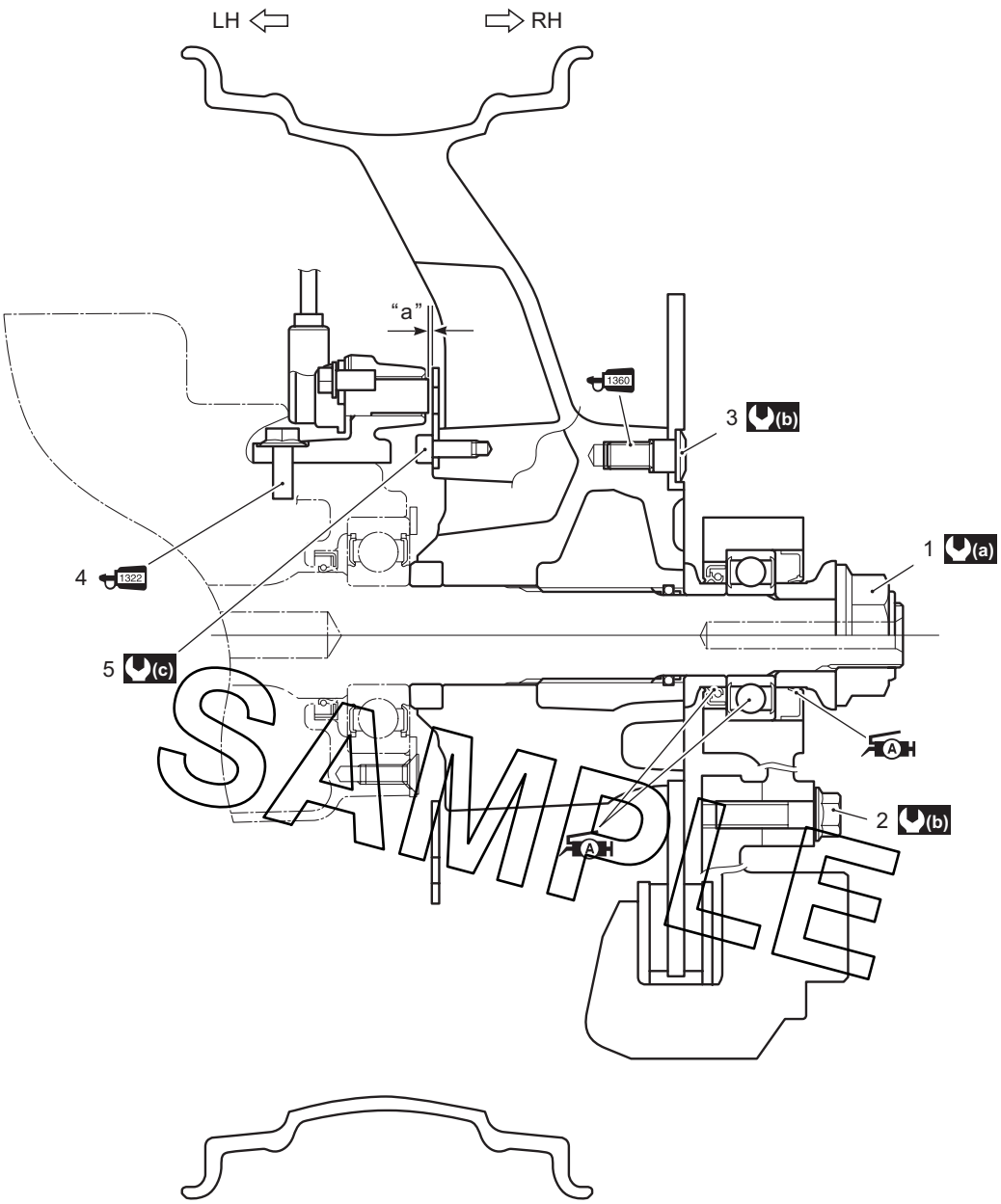


I905H1240006-01

1. Rear axle	7. Rear axle nut	(a) : 23 N·m (2.3 kgf-m, 16.5 lbf-ft)
2. Brake disc	8. Tire	(b) : 120 N·m (12.0 kgf-m, 87.0 lbf-ft)
3. Brake disc bolt	9. Air valve	(c) : 6 N·m (0.6 kgf-m, 4.5 lbf-ft)
4. O-ring	10. Wheel balancer	A : Apply grease.
5. Collar	11. Wheel speed sensor rotor	1360 : Apply thread lock to thread part.
6. Collar	12. Wheel speed sensor rotor bolt	⊗ : Do not reuse.

Rear Wheel Assembly Construction (AN400A/ZAK9)

B905H12406017



I905H1240011-04

1. Rear axle nut	5. Rear wheel speed sensor rotor bolt	(c) : 6 N·m (0.6 kgf-m, 4.5 lbf-ft)
2. Rear brake caliper mounting bolt	"a": 0.16 – 1.62 mm (0.006 – 0.064 in)	A H : Apply grease.
3. Rear brake disc bolt	(a) : 120 N·m (12.0 kgf-m, 87.0 lbf-ft)	1322 : Apply thread lock to thread part.
4. Rear wheel speed sensor bracket mounting bolt	(b) : 23 N·m (2.3 kgf-m, 16.5 lbf-ft)	1360 : Apply thread lock to thread part.

Rear Wheel Assembly Removal and Installation (AN400A/ZAK9)

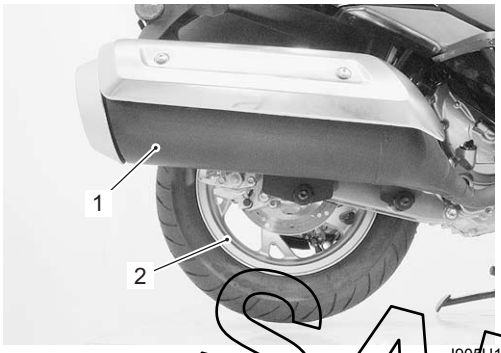
B905H12406018

⚠ CAUTION

- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **Do not hit the front wheel speed sensor rotor when dismounting the front wheel.**

Removal

1) Remove the muffler (1) and rear wheel assembly (2). Refer to “Rear Wheel Assembly Removal and Installation” in related manual.



I905H1240008-01

2) Remove the rear wheel speed sensor rotor if necessary. Refer to “Rear Wheel Speed Sensor Rotor Removal and Installation (AN400A/ZAK9)” in Section 4E (Page 4E-73).

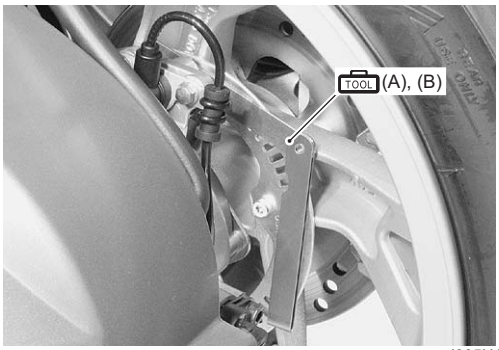
Installation

Refer to “Rear Wheel Related Parts Inspection” in related manual.
Refer to “Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)” in Section 4E (Page 4E-74).
Install the rear wheel assembly in the reverse order of removal. Pay attention to the following points:

- Install the rear wheel assembly and muffler. Refer to “Rear Wheel Assembly Removal and Installation” in related manual.

Special tool
TOOL (A): 09900–20803 (Thickness gauge)
TOOL (B): 09900–20806 (Thickness gauge)

Wheel speed sensor – Sensor rotor clearance
0.16 – 1.62 mm (0.006 – 0.064 in)



I905H1240009-02

Specifications

Tightening Torque Specifications

B905H12407002

NOTE

The specified tightening torque is described in the following.
“Front Wheel Components (AN400A/ZAK9)” (Page 2D-1)
“Front Wheel Assembly Construction (AN400A/ZAK9)” (Page 2D-2)
“Rear Wheel Components (AN400A/ZAK9)” (Page 2D-4)
“Rear Wheel Assembly Construction (AN400A/ZAK9)” (Page 2D-5)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

Special Tools and Equipment

Recommended Service Material

B905H12408001

NOTE

Required service material is also described in the following.
“Front Wheel Components (AN400A/ZAK9)” (Page 2D-1)
“Front Wheel Assembly Construction (AN400A/ZAK9)” (Page 2D-2)
“Rear Wheel Components (AN400A/ZAK9)” (Page 2D-4)
“Rear Wheel Assembly Construction (AN400A/ZAK9)” (Page 2D-5)

Special Tool

B905H12408002

09900–20803 Thickness gauge ☞(Page 2D-3) / ☞(Page 2D-6)	09900–20806 Thickness gauge ☞(Page 2D-3) / ☞(Page 2D-6)

Section 4

Brake

CONTENTS

NOTE

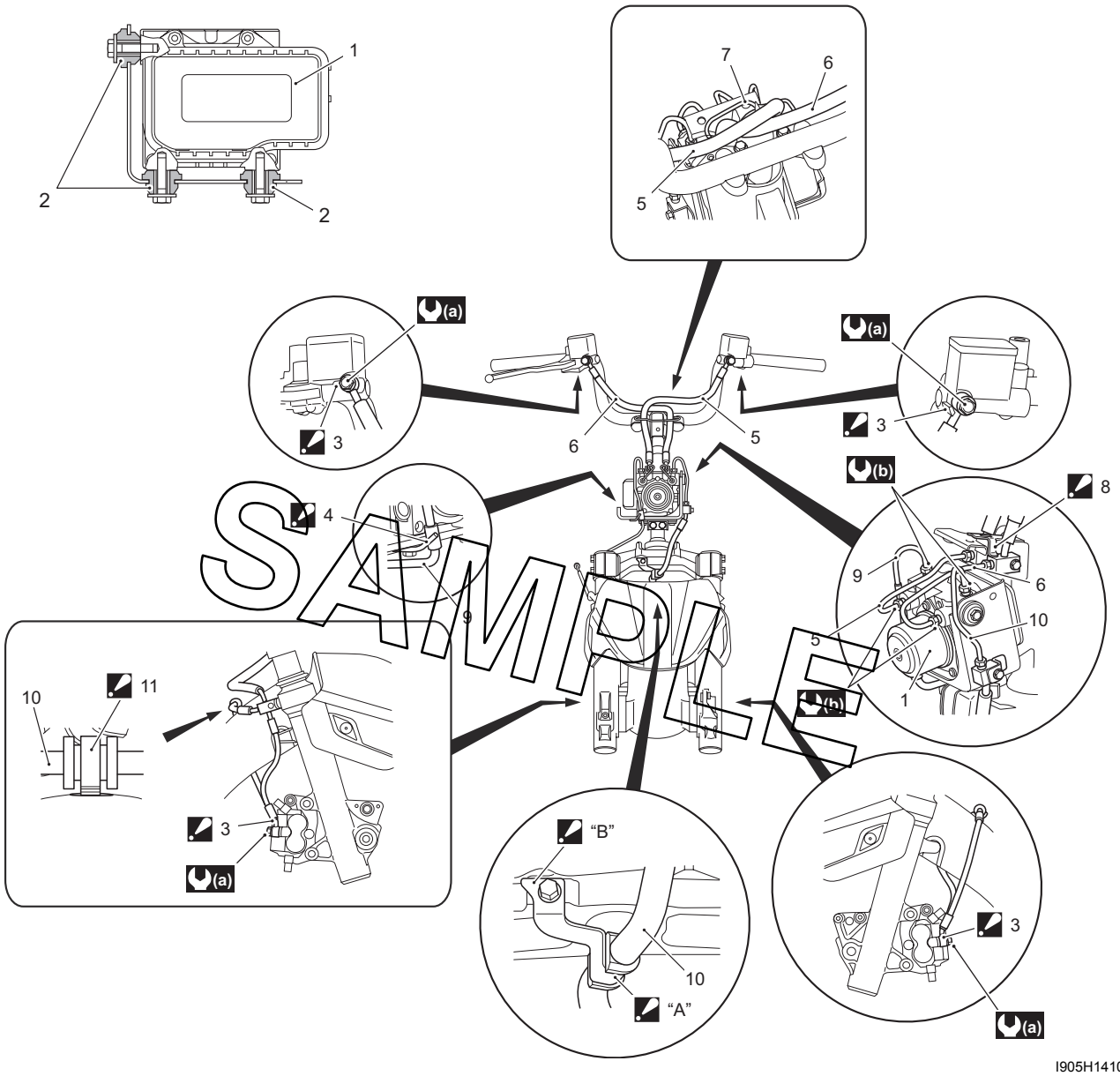
For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Brake Control System and Diagnosis

Schematic and Routing Diagram

Front Brake Hose Routing Diagram (AN400A/ZAK9)

B905H14102003

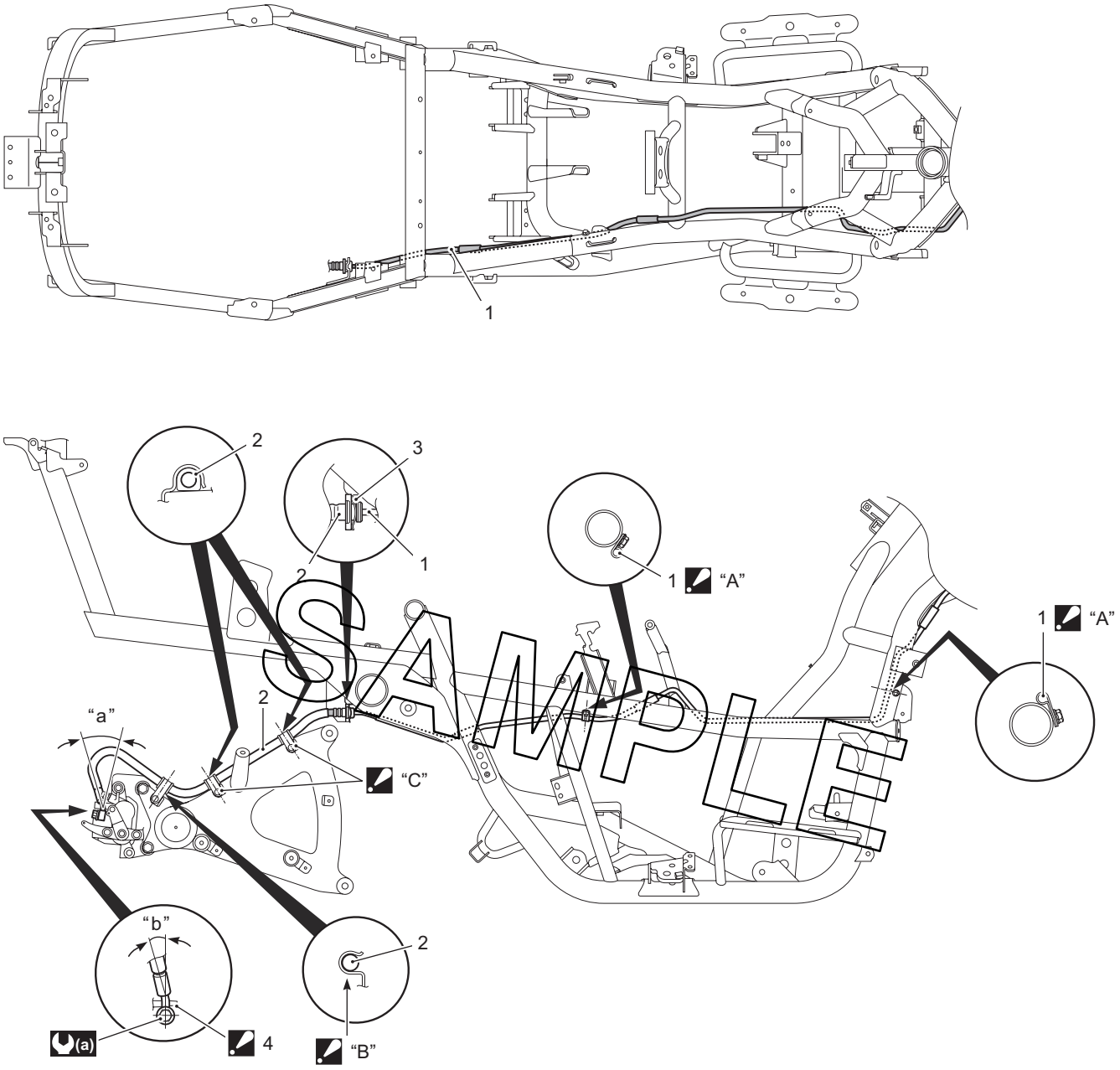


I905H1410001-02

1. ABS control unit/HU	9. Rear brake pipe No. 2
2. Rubber	10. Front brake hose No. 2
3. Stopper : After the brake hose union has contacted the stopper, tighten the union bolt.	11. Clamp : Insert the brake hose clamp to the hole of front fender properly.
4. Stopper : After the brake pipe protector has contacted the stopper, tighten the brake pipe flare nut.	"A": Fix the brake hose protector to its hose clamp.
5. Rear brake hose No. 1	"B": After the clamp has contacted the stopper, tighten the clamp mounting bolt.
6. Front brake hose No. 1	(a) : 23 N·m (2.3 kgf-m, 16.5 lbf-ft)
7. Brake hose guide	(b) : 16 N·m (1.6 kgf-m, 11.5 lbf-ft)
8. Stopper : After the brake hose union has contacted the stopper, tighten the union mounting bolt.	

Rear Brake Hose Routing Diagram (AN400A/ZAK9)

B905H14102004



I905H1410003-01

1. Rear brake pipe No. 2	“B”: Fix the brake hose to its hose clamp.
2. Rear brake hose No. 2	“C”: After positioning the clamp with the stopper on the swingarm, tighten the clamp bolt.
3. E-ring	(a): 23 N·m (2.3 kgf-m, 16.5 lbf-ft)
4. Stopper : After the brake hose union has contacted the stopper, tighten the union bolt.	“a”: 28 °
“A”: Clamp the brake pipe at white marking point.	“b”: 14 °

Repair Instructions

Front Brake Hose Removal and Installation (AN400A/ZAK9)

B905H14106016

⚠ CAUTION

- **This brake system is filled with an ethylene glycol- based DOT 4 brake fluid. Do not mix different types of fluid such as silicone-based or petroleum-based.**
- **Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for long periods.**
- **Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc., and will damage then severely.**

Removal

1) Turn the ignition switch OFF.
2) Remove the front leg shield. Refer to “Front Leg Shield Removal and Installation” in Section 9D in related manual.
3) Drain brake fluid. Refer to “Brake Fluid Replacement” in related manual.
4) Remove the front brake hoses as shown in the front brake hose routing diagram. Refer to “Front Brake Hose Routing Diagram (AN400A/ZAK9)” (Page 4A-1).

Installation

⚠ CAUTION

The seal washers should be replaced with the new ones to prevent fluid leakage.

1) Install the front brake hoses as shown in the front brake hose routing diagram. Refer to “Front Brake Hose Routing Diagram (AN400A/ZAK9)” (Page 4A-1).
2) Bleed air from the front brake system. Refer to “Air Bleeding from Brake Fluid Circuit” in related manual.
3) Reinstall the removed parts.

Rear Brake Hose Removal and Instaltion (AN400A/ZAK9)

B905H14106017

⚠ CAUTION

- **This brake system is filled with an etylene glycol-based DOT 4 brake fluid. Do not mix different types of fluid such as silicone-based or petroleum-based.**
- **Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for long periods.**
- **Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc., and will damage then severely.**

Removal

1) Remove the right footboard. Refer to “Footboard Removal and Installation” in Section 9D in related manual.
2) Drain brake fluid. Refer to “Brake Fluid Replacement” in related manual.
3) Remove the rear brake hoses as shown in the rear brake hose routing diagram. Refer to “Rear Brake Hose Routing Diagram (AN400A/ZAK9)” (Page 4A-2).

Installation

⚠ CAUTION

The seal washers should be replaced with the new ones to prevent fluid leakage.

1) Install the rear brake hoses as shown in the rear brake hose routing diagram. Refer to “Rear Brake Hose Routing Diagram (AN400A/ZAK9)” (Page 4A-2).
2) Bleed air from the rear brake system. Refer to “Air Bleeding from Brake Fluid Circuit” in related manual.
3) Reinstall the removed parts.

Specifications

Tightening Torque Specifications

B905H14107002

NOTE

The specified tightening torque is described in the following.
“Front Brake Hose Routing Diagram (AN400A/ZAK9)” (Page 4A-1)
“Rear Brake Hose Routing Diagram (AN400A/ZAK9)” (Page 4A-2)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

ABS

Precautions

Precautions for ABS (AN400A/ZAK9)

B905H14500001

Refer to “Precautions for ABS (AN400A/ZAK9)” in Section 00 (Page 00-1) and “Precautions for Electrical Circuit Service” in Section 00 in related manual.

ABS Information (AN400A/ZAK9)

B905H14500002

⚠ WARNING

- **Be sure to bleed air from the brake fluid circuit when the brake is felt spongy or when a brake relating part is replaced.**
- **Never ride the motorcycle before bleeding the air.**

- Be sure to route the brake hoses correctly.
- The ABS does not shorten the motorcycle’s braking distance. When riding down slopes or on wet or bumpy roads the braking distance is lengthened as compared to a motorcycle without ABS. In addition, braking distance increases more, when the road is slippery.
- The ABS does not control slides which may occur when braking while turning. As with a motorcycle that does not have ABS, it is best not apply the brakes while turning.
- The brake levers may move by themselves when they are applied. This is not a malfunction.
- Only use the specified tires.

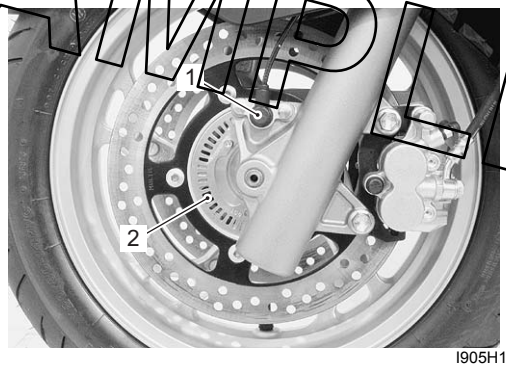
General Description

Wheel Speed Sensor Description (AN400A/ZAK9)

B905H14501001

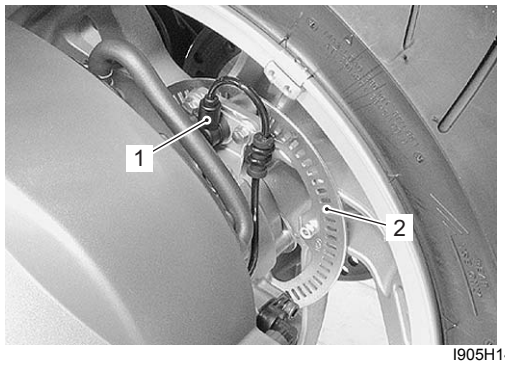
Wheel speed sensor consists of wheel speed sensor (1) and sensor rotor (2).

Front



I905H1450001-01

Rear

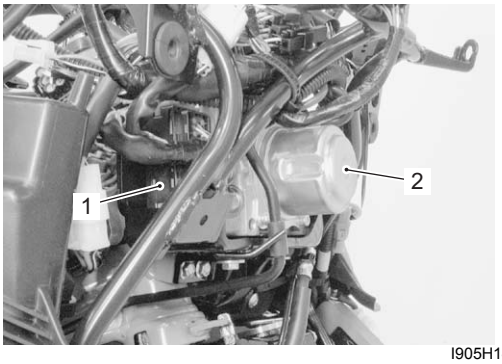


I905H1450002-02

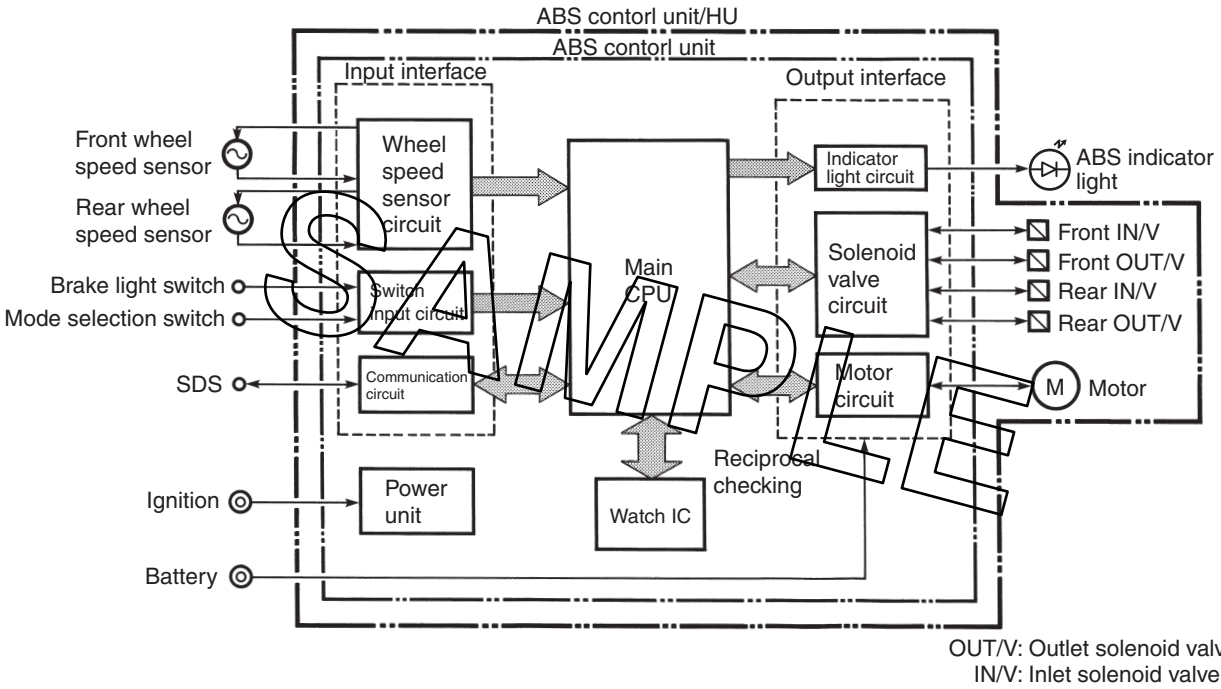
ABS Control Unit Description (AN400A/ZAK9)

B905H14501002

ABS control unit (1) calculates signals input from each one of front and rear wheel speed sensors, monitors the slipping conditions of the wheels and, at the same time, sends control signal to Hydraulic Unit (HU) (2).
This ABS control unit/HU can not be disassembled.



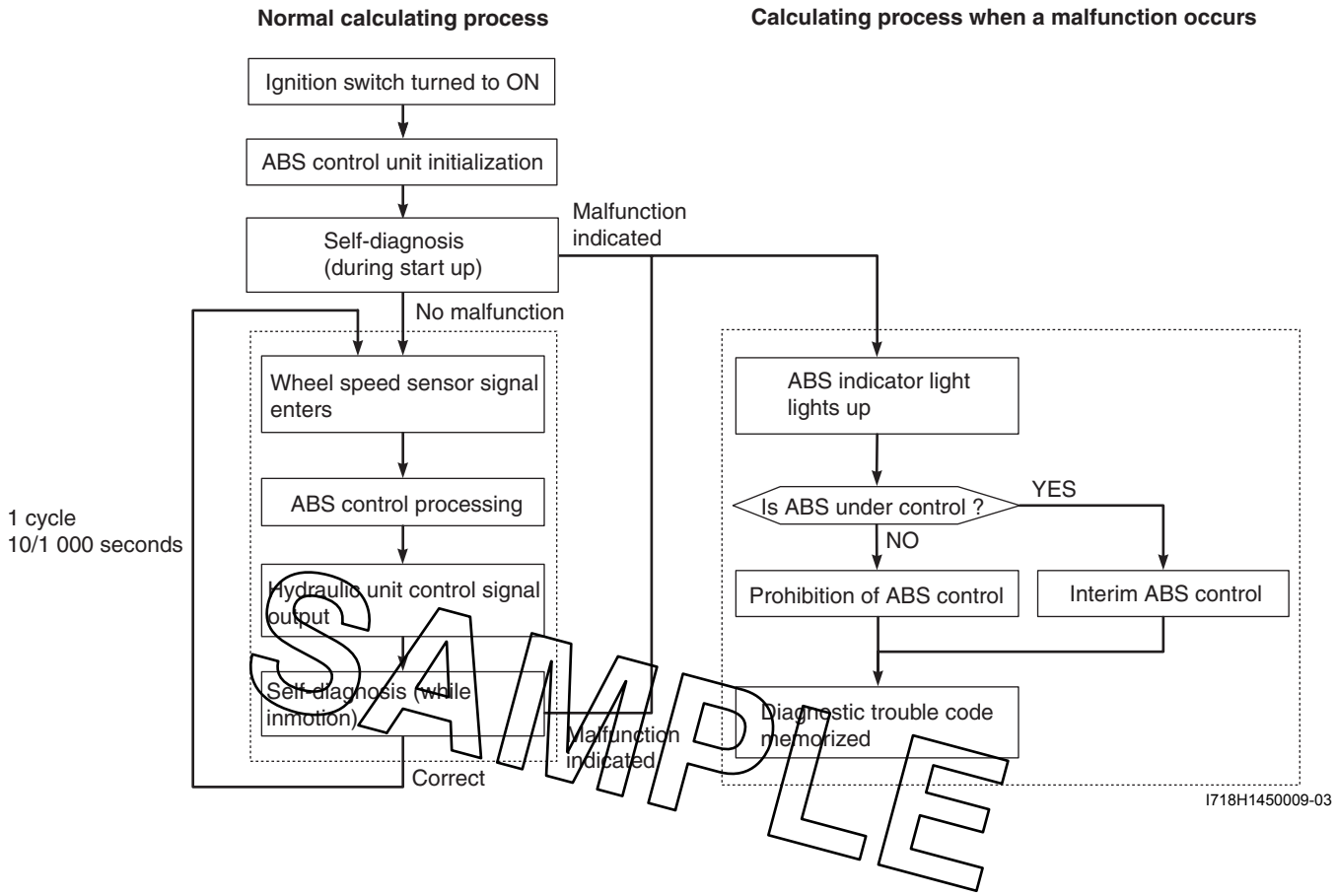
I905H1450003-01



I718H1450008-02

ABS Control Unit Calculating Process

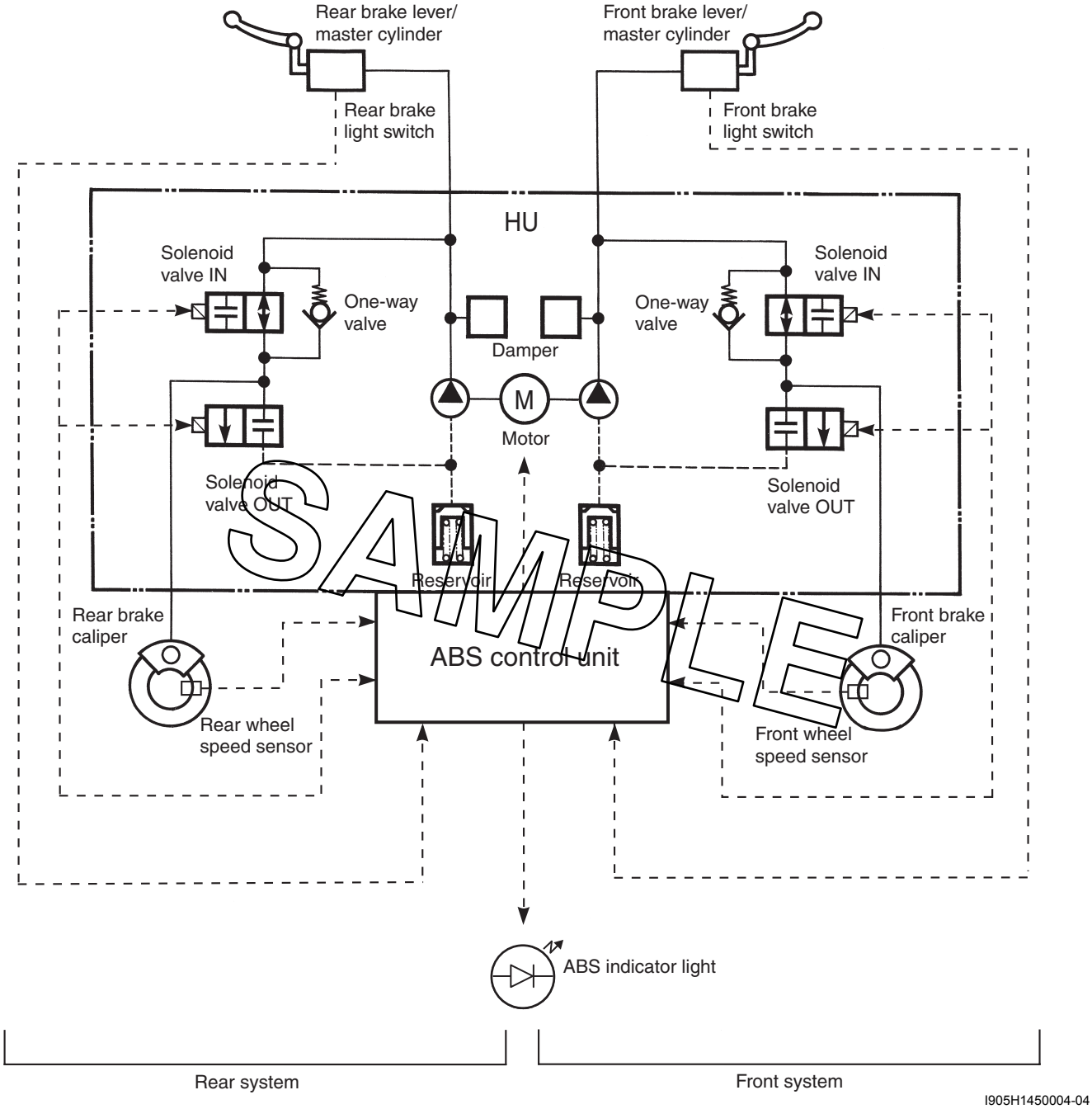
The ABS controls and its calculations, in addition to the self-diagnosing and the fail-safe processes, occur during the ABS control unit calculating process. ABS control is performed in one cycle every 10/1 000 seconds. In addition, if a malfunction is detected by the self-diagnosis function, the brake stops being controlled by the ABS and a diagnostic trouble code is stored.



Hydraulic Unit (HU) Description (AN400A/ZAK9)

B905H14501003

The hydraulic unit operates the solenoid valves based upon the signal which is output from the ABS control unit. The brake fluid pressure is then adjusted accordingly. The hydraulic unit controls the front and rear brake systems individually by operating separate components for the front and the rear, except for the pump drive motor, which is shared by both systems.



I905H1450004-04

Self-diagnosis Function and ABS Indicator Light Description (AN400A/ZAK9)

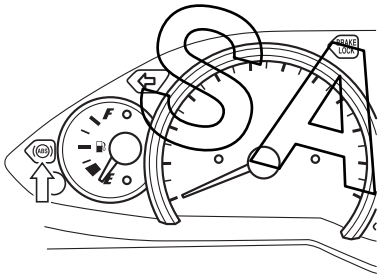
B905H14501006

The ABS control unit performs the self-diagnosis and can store any electronically detected malfunctions as diagnostic trouble codes. If a malfunction has occurred, the indicator light lights up to inform the rider of the malfunction. The special tool, when connected to the mode select coupler, enables the ABS indicator light to display the diagnostic trouble codes.

ABS Indicator Light

The ABS indicator light informs the rider of any ABS malfunctions. If a malfunction occurred, the ABS indicator light flashes, during the self-diagnosis, to indicate the diagnostic trouble code so that the correct part can be repaired.

- When the ignition switch is turned to ON, the ABS indicator light lights up even if no malfunction has occurred, to indicate that the bulb is not burnt out. It will go off after the motorcycle is ridden at more than 10 km/h (6.2 mile/h).
- If an ABS malfunction has occurred, the ABS indicator light keeps lighting up.



I905H1450005-01

NOTE

When a malfunction has occurred in the ABS, connect the special tool to the mode select coupler to display the diagnostic trouble code on the ABS indicator light. Refer to "DTC (Diagnostic Trouble Code) Output (AN400A/ZAK9)" (Page 4E-22).

Special tool

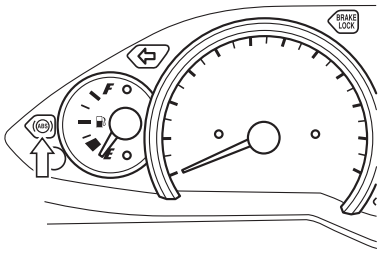
TOOL (A): 09930–82710 (Mode select switch)

I905H1450006-01

ABS Operation and ABS Indicator Light

The ABS indicator light shows the ABS operating condition. During normal operation, the ABS indicator light lights up when the ignition switch is turned to ON and goes off after the motorcycle is ridden at more than 10 km/h (6.2 mile/h). If a malfunction has occurred, the ABS indicator light keeps lighting up.

The ABS indicator light goes off when the motorcycle is ridden at more than 10 km/h.	The ABS is normally activated.
The ABS indicator light keeps lighting up even though the motorcycle is ridden at more than 10 km/h (6.2 mile/h).	One or more malfunction has been found and ABS activation been hanged up.
The ABS indicator light does not light up when turning the ignition switch ON.	Check the wire harness and combination meter. Refer to "ABS Indicator Light Inspection (AN400A/ZAK9)" (Page 4E-16).



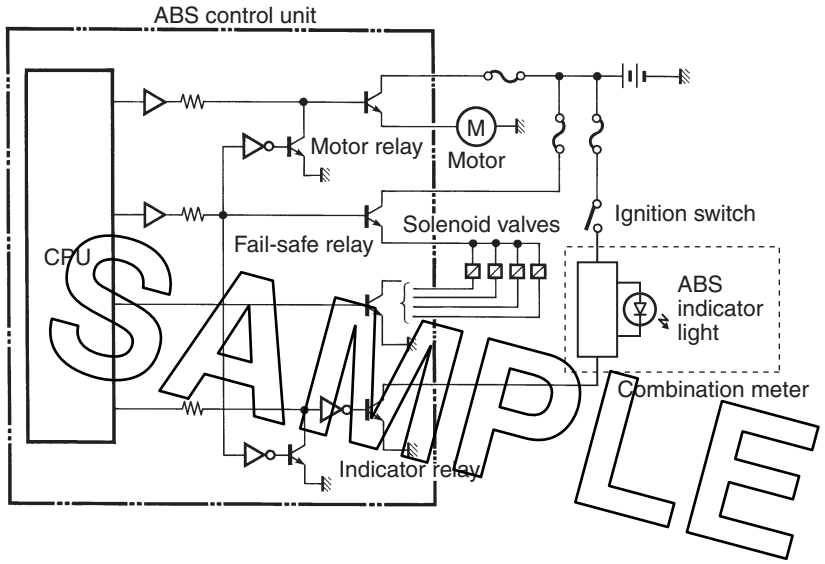
I905H1450005-01

Stored DTCs (Diagnostic Trouble Codes)
As for the diagnostic trouble code, the code of the first malfunction occurred during one ignition ON period will be stored. Pay attention to the fact that even though there may occur several malfunctions in one ON-period, only one code will be stored. Codes of malfunction that occurred in the past are all stored, but the same diagnostic trouble code will not be redundant.
Check and see if any diagnostic trouble code remains, by actually running the machine to activate ABS and by carrying out the self-diagnosis after deleting the diagnostic trouble code once the malfunctioned part is repaired.

Fail-safe Function Description (AN400A/ZAK9)

B905H14501007

If malfunction occurs in the ABS electric system, this sets fail-safe relay OFF. Consequently, motor relay will be set OFF and the indicator light ON, and no current will be applied to motor solenoid valve inactivating ABS and turning ABS indicator light ON. In this case, it functions as the normal brake. However, if malfunctions occurs while ABS is being activated, when ABS control unit diagnoses that the operation can continue, it will effectuate ABS provisional control (turning the ABS indicator light ON). Upon the moment when ABS provisional control is over, the fail-safe relay will be set OFF.



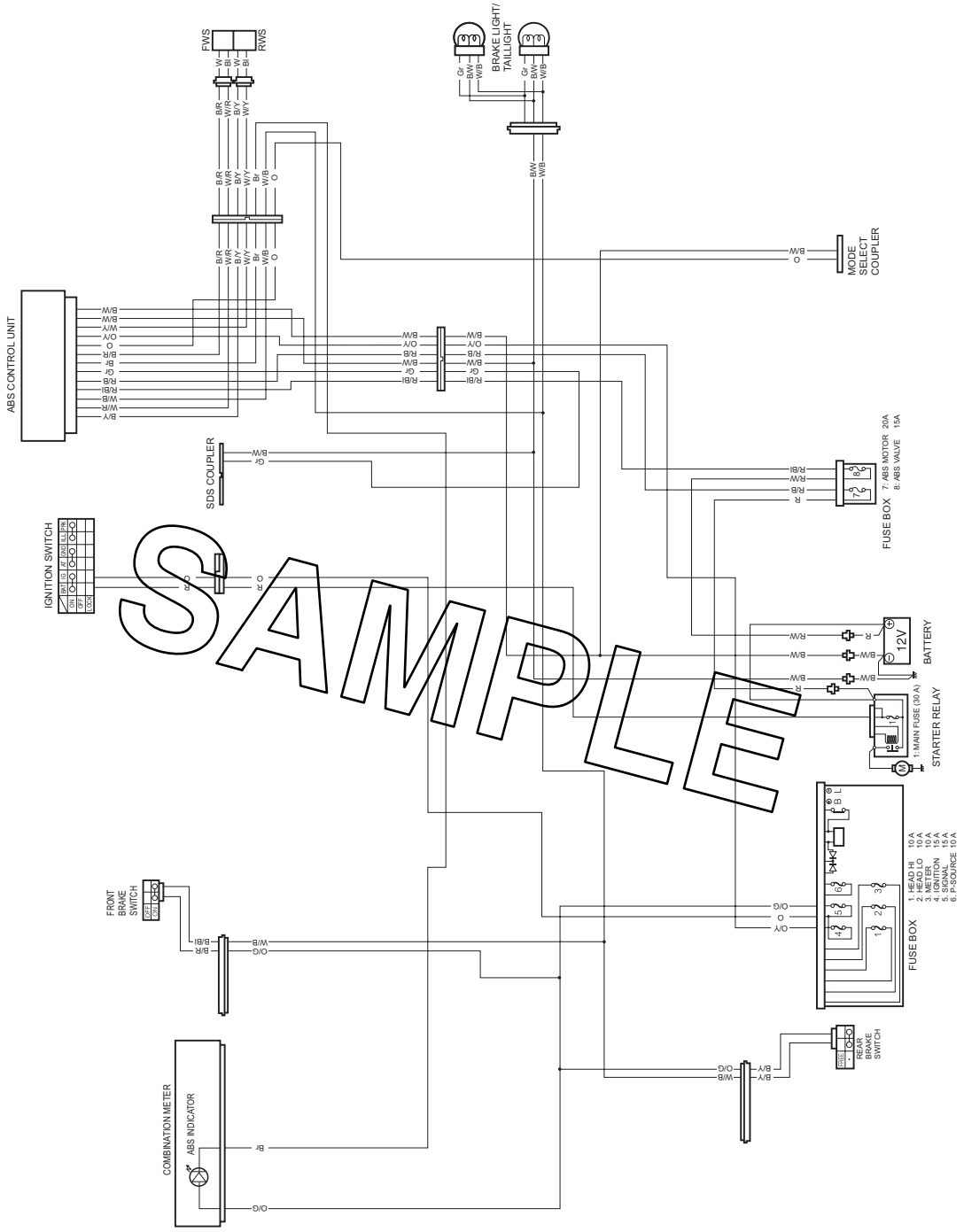
I717H2450035-01

Schematic and Routing Diagram

ABS Wiring Diagram (AN400A/ZAK9)

B905H14502001

Refer to “Wire Color Symbols” in Section 0A in related manual.

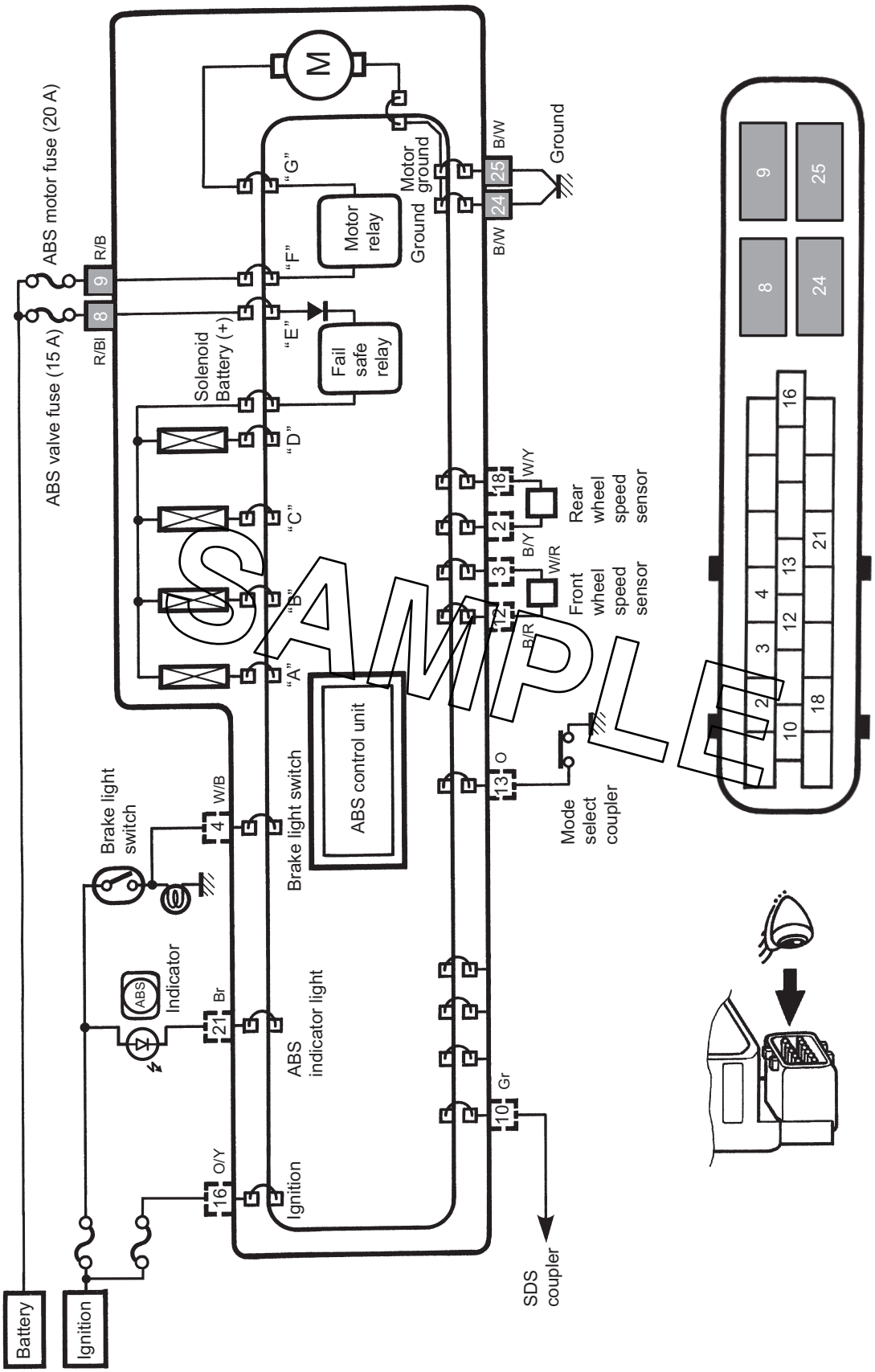


I905H1450007-03

ABS Unit Diagram (AN400A/ZAK9)

B905H14502002

Refer to “Wire Color Symbols” in Section 0A in related manual.

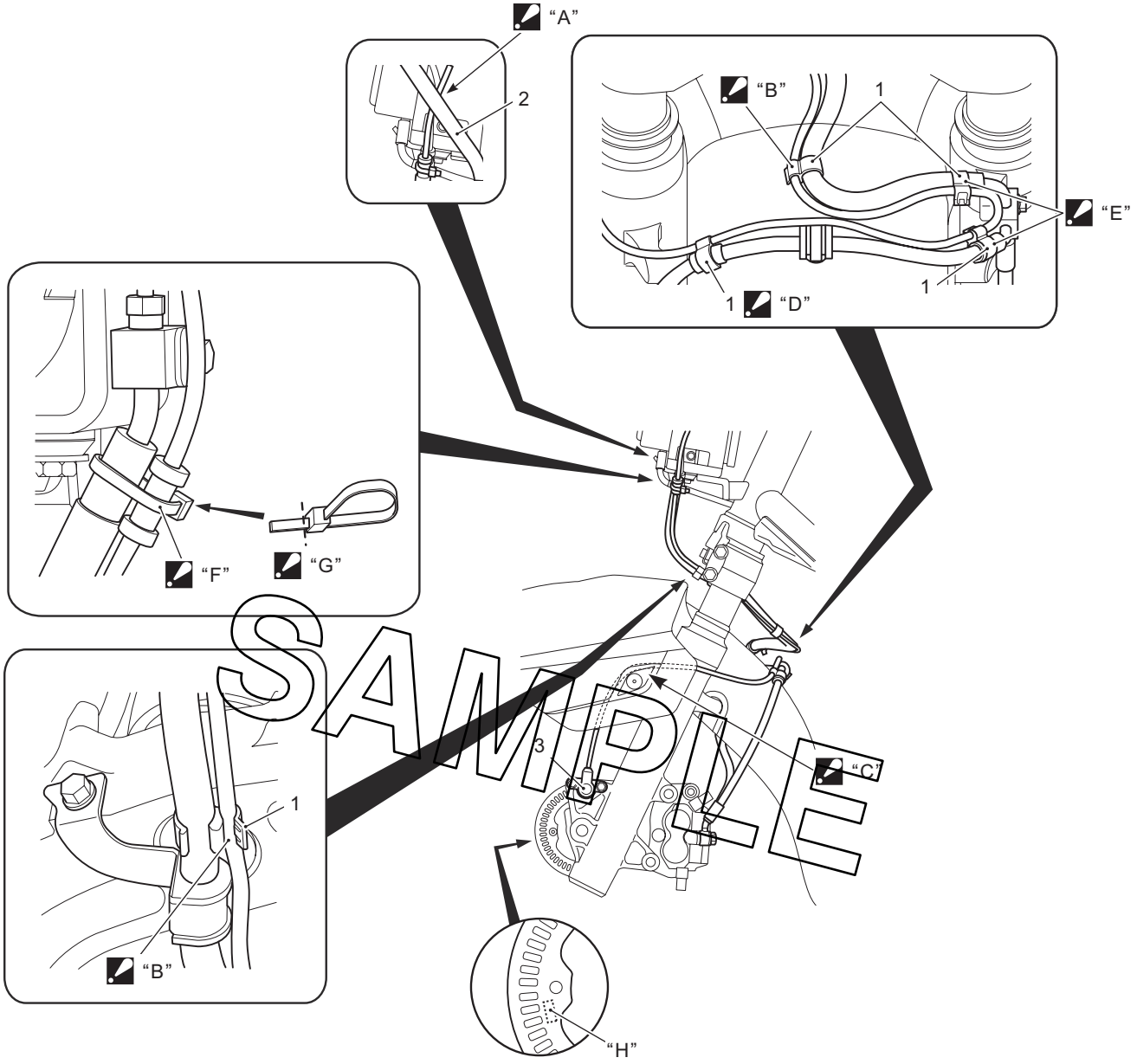


I905H1450008-01

“A”: Rear brake solenoid OUT	“C”: Front brake solenoid OUT	“E”: Fail safe (+) B	“G”: Motor (+)
“B”: Rear brake solenoid IN	“D”: Front brake solenoid IN	“F”: Motor relay (+) B	

Front Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)

B905H14502003

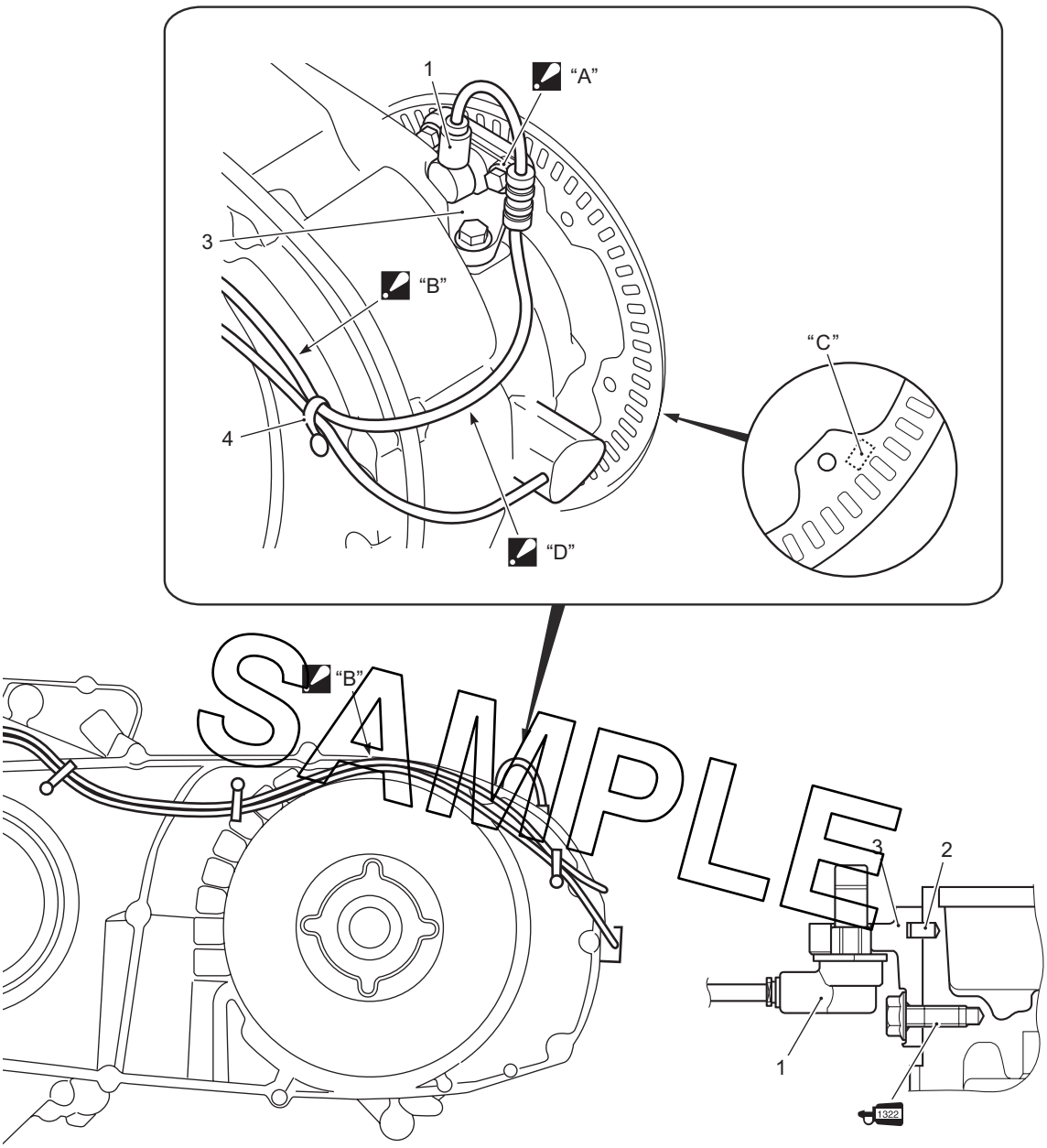


I905H1450071-02

1. Clamp	"D": Clamp the white taping point of sensor lead wire and the protector of brake hose.
2. Leg shield brace	"E": Clamp the white taping point of sensor lead wire and the brake hose sleeve.
3. Front wheel speed sensor	"F": Clamp the protector of sensor lead wire and the brake hose sleeve.
"A": Pass the sensor lead wire inside of leg shield brace.	"G": Cut off the excess end of clamp.
"B": Clamp the white taping point of sensor lead wire and the brake hose.	"H": Outside marking.
"C": Pass the sensor lead wire between front fender and front fork. Pass the sensor lead wire in front of the front fender mounting bolt.	

Rear Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)

B905H14502004



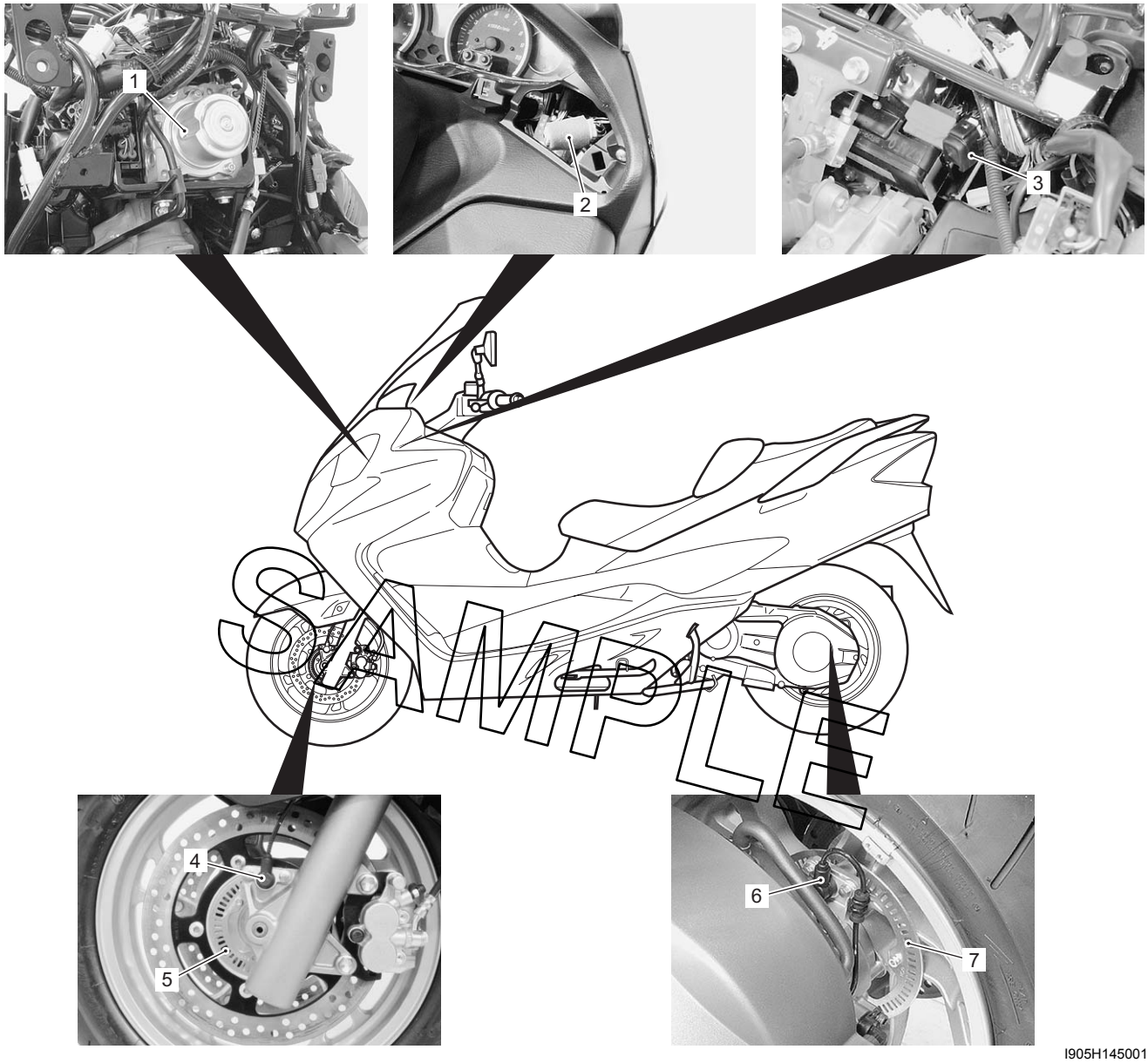
I905H1450072-06

1. Rear wheel speed sensor	"B": Pass the rear wheel speed sensor lead wire along the speed sensor lead wire.
2. Sensor bracket pin	"C": Outside marking
3. Sensor bracket	"D": Pass the rear wheel speed sensor lead wire along the depression of left crankcase.
4. Clamp	1322 : Apply thread lock to thread part.
"A": Fit the clamp between bolt and rear wheel speed sensor.	

Component Location

ABS Components Location (AN400A/ZAK9)

B905H14503001



I905H1450011-03

1. ABS control unit/HU	3. Mode select coupler	5. Front wheel speed sensor rotor	7. Rear wheel speed sensor rotor
2. SDS coupler	4. Front wheel speed sensor	6. Rear wheel speed sensor	

Diagnostic Information and Procedures

ABS Troubleshooting (AN400A/ZAK9)

B905H14504001

Many of the ABS malfunction diagnosing operations are performed by checking the wiring continuity. Quick and accurate detection of malfunctions within the complex circuitry assures the proper operation of the ABS. Before beginning any repairs, thoroughly read and understand this Supplementary Service Manual.
The ABS is equipped with a self-diagnosis function. The detected malfunction is stored as a diagnostic trouble code which causes the ABS indicator light to light up or flash in set patterns to indicate the malfunction. Diagnostic trouble codes are stored even when the ignition switch is turned to OFF and they can only be erased manually. In order to repair the ABS correctly, ask the customer for the exact circumstances under which the malfunction occurred, then check the ABS indicator light and the output diagnostic trouble codes. Explain to the customer that depending on how the motorcycle is operated (e.g., if the front wheel is off the ground), the ABS indicator light may light up even though the ABS is operating correctly.

Troubleshooting Procedure

Troubleshooting should be proceed as follows. If the order is performed incorrectly or any part is omitted, an error in misdiagnosis may result.

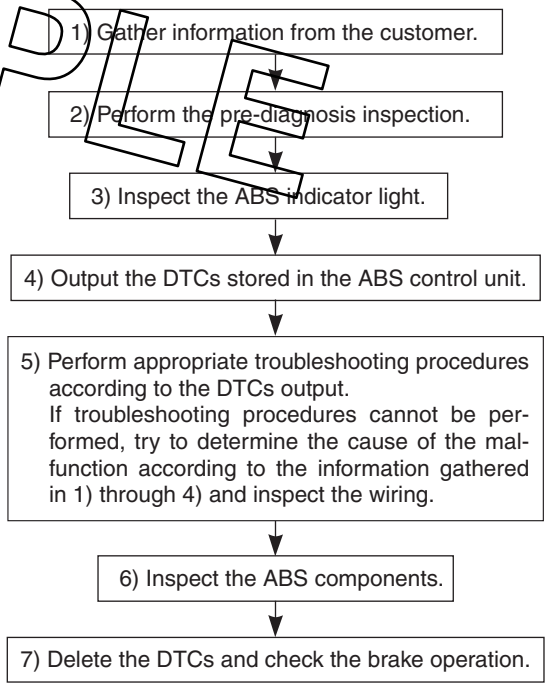
1) Gather information from the customer.
2) Perform the pre-diagnosis inspection. Refer to "Pre-diagnosis Inspection (AN400A/ZAK9)" (Page 4E-14).
3) Inspect the ABS indicator light. Refer to "ABS Indicator Light Inspection (AN400A/ZAK9)" (Page 4E-16).
4) Output the DTCs stored in the ABS control unit. Refer to "DTC (Diagnostic Trouble Code) Output (AN400A/ZAK9)" (Page 4E-22).
5) Perform appropriate troubleshooting procedures according to the DTCs output. Refer to "DTC Table (AN400A/ZAK9)" (Page 4E-31).
   If troubleshooting procedures cannot be performed, try to determine the cause of the malfunction according to the information gathered in 1) through 4) and inspect the wiring. Refer to "ABS Wiring Diagram (AN400A/ZAK9)" (Page 4E-7) and "ABS Unit Diagram (AN400A/ZAK9)" (Page 4E-8).

⚠ CAUTION

- **When disconnecting couplers and turning the ignition switch ON, disconnect the ABS control unit coupler in order to prevent a DTC from being stored.**
- **Each time a resistance is measured, the ignition switch should be set to OFF.**

6) Inspect the ABS components. Refer to "Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)" (Page 4E-74).
7) Delete the DTCs and check the brake operation. Refer to "DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)" (Page 4E-25).

Basic Troubleshooting Diagram



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Information Gathering

To properly diagnose a malfunction, one must not make guesses or assumptions about the circumstances that caused it. Proper diagnosis and repair require duplicating the situation in which the malfunction occurred. If a diagnosis is made without duplicating the malfunction, even an experienced service technician may make a misdiagnosis and not perform the servicing procedure correctly, resulting in the malfunction not being repaired. For example, a malfunction that occurs only while braking on slippery surfaces will not occur if the motorcycle is ridden on a non-slippery surface. Therefore, in order to properly diagnose and repair the motorcycle, the customer must be questioned about the conditions at the time that the malfunction occurred making “Information gathering” very important. In order that the information obtained from the customer to be used as a reference during troubleshooting, it is necessary to ask certain important questions concerning the malfunction. Therefore, a questionnaire has been created to improve the information-gathering procedure.

EXAMPLE: CUSTOMER PROBLEM INSPECTION FORM

User name:	**Model:**	**VIN:**	**Date of issue:**
Date Reg.	**Date of problem:**	**Mileage:**	

PROBLEM SYMPTOMS	
ABS operation	**Past malfunctions and repairs**
ABS does not work	
ABS works so often with	
Too long stopping distance	
Other	

CONDITION WHEN MALFUNCTION OCCURED	
ABS indicator light	**Riding conditions**
Does not light up	**While stopping**
Lights up	**Over 10 km/h**
Goes off after running over 10 km/h: Yes / No	**When turning**
Flashes	**Others**
Tires	**Brake operating conditions**
Abnormal air pressure	**Usual braking**
Less thread depth	**Quick/hard braking**
No specified tires installed	
	Interface
Road surface	**Too big pulsations at brake levers**
Paved road:	**Too large brake lever strokes**
Dry / Wet / Others	**Others**
Unpaved road:	
Gravel / Muddy / Uneven / Others	**Others**
	Abnormal noise from the ABS control unit/HU
	Skid noise from the calipers
	Vibration at the brake levers
NOTE:	

NOTE

This form is a standard sample. The form should be modified according to conditions and characteristic of each market.

Pre-diagnosis Inspection (AN400A/ZAK9)

B905H14504019

The mechanical and hydraulic components of the brake system should be inspected prior to performing any electrical checks. These inspections may find problems that the ABS could not detect; thus, shortening repair time.

Brake

Brake fluid level check

Refer to “Brake System Inspection” in Section 0B in related manual.

Brake pad inspection

Refer to “Brake System Inspection” in Section 0B in related manual.

Brake fluid circuit air bleeding

Refer to “Air Bleeding from Brake Fluid Circuit” in Section 4A in related manual.

Tire

Tire type

Tire type

Front: BRIDGESTONE HOOP B03 G

Rear: BRIDGESTONE HOOP B02 G

Tire pressure

Refer to “Tire Inspection” in Section 0B in related manual.

⚠ CAUTION

- **The standard tire fitted on this motorcycle is 120/80-14M/C 58S for front and 150/70-13M/C 64S for rear. The use of tires other than those specified may cause instability. It is highly recommended to use a SUZUKI Genuine Tire.**
- **Replace the tire as a set, otherwise the DTC “25” (C1625) may be stored.**

Wheel

Refer to “Front Wheel Related Parts Inspection” in Section 2D in related manual and “Rear Wheel Related Parts Inspection” in Section 2D in related manual.

Battery

Battery voltage inspection

1) Turn the ignition switch OFF.
2) Open the front box and remove the battery cover. Refer to “Battery Removal and Installation” in Section 1J in related manual.
3) Measure the voltage between the (+) and (–) battery terminals using the multi circuit tester.
   If the voltage is less than 12.0 V, charge or replace the battery and inspect the charging system. Refer to “Battery Runs Down Quickly” in Section 1J in related manual.

   Special tool

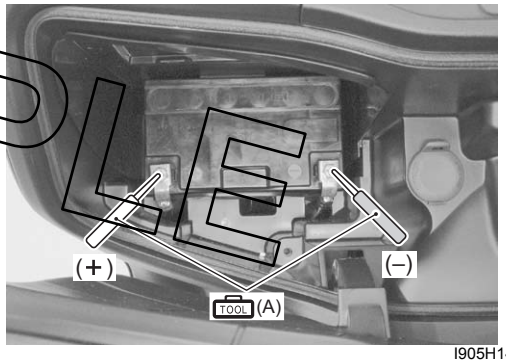
   TOOL (A): 09900–25008 (Multi circuit tester set)

   Tester knob indication

   Voltage (⎓)

   Battery voltage

   12.0 V and more



I905H1450012-01

4) Reinstall the battery cover and close the front box.

ABS Component

Wheel speed sensor – sensor rotor clearance inspection

Inspect the clearance between the wheel speed sensor and sensor rotor for each wheel using the thickness gauge.

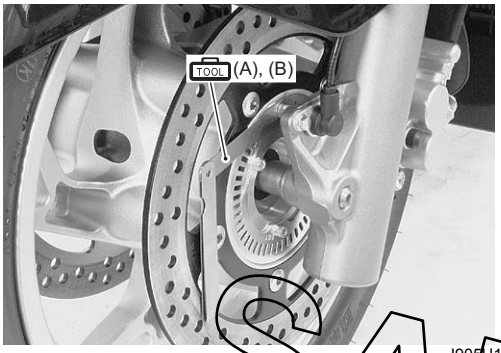
Special tool

(A): 09900–20803 (Thickness gauge)
(B): 09900–20806 (Thickness gauge)

Wheel speed sensor – Sensor rotor clearance

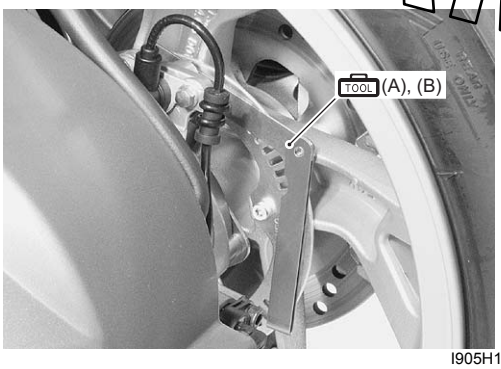
Front: 0.36 – 1.62 mm (0.014 – 0.064 in)
Rear: 0.16 – 1.62 mm (0.006 – 0.064 in)

Front



I905H1240005-02

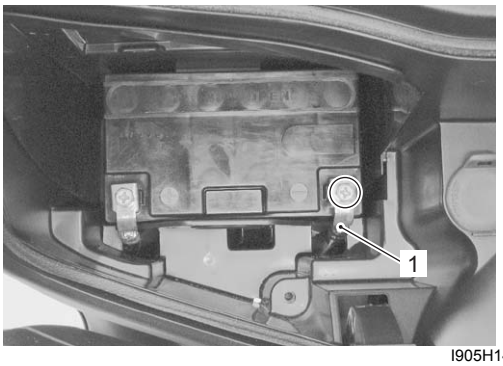
Rear



I905H1240009-02

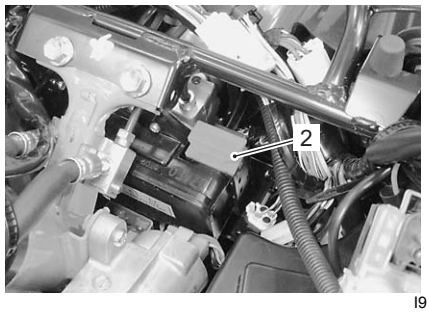
ABS control unit/HU ground wire inspection

1) Turn the ignition switch OFF.
2) Open the front box and remove the battery cover. Refer to “Battery Removal and Installation” in Section 1J in related manual.
3) Disconnect the battery (–) lead wire (1).



I905H1450013-01

4) Disconnect the ABS control unit coupler (2). Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71).



I905H1450015-01

5) Check for continuity between “24” (B/W) at the coupler and the battery (–) terminal, also “25” (B/W) at the coupler and the battery (–) terminal.

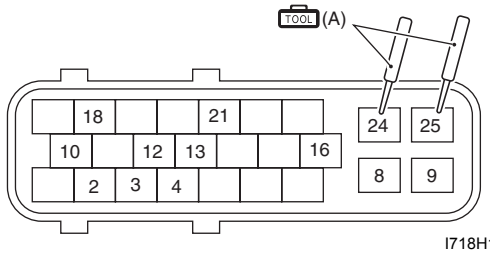
Special tool

(A): 09900–25008 (Multi circuit tester set)

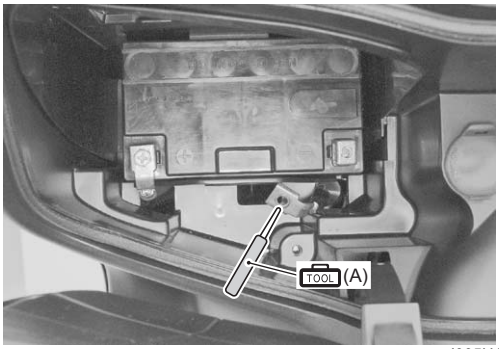
Tester knob indication

Continuity (•))))

ABS control unit coupler (Harness side)



I718H1450030-03



I905H1450014-01

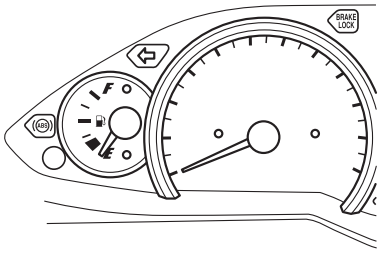
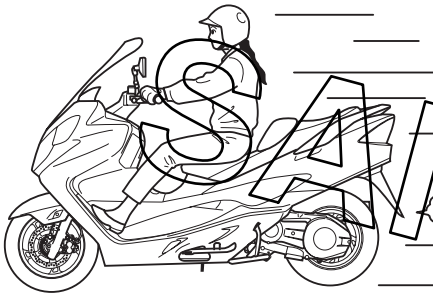
ABS Indicator Light Inspection (AN400A/ZAK9)

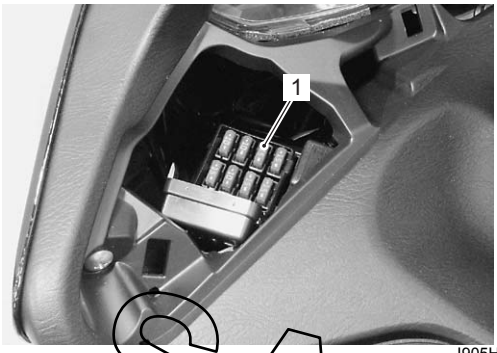
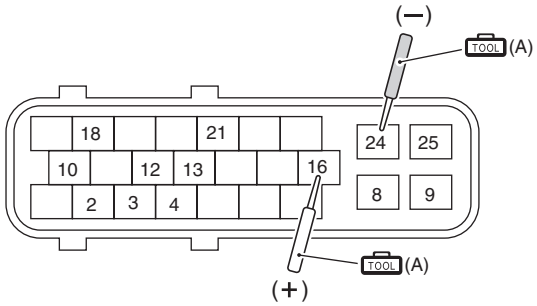
B905H14504020

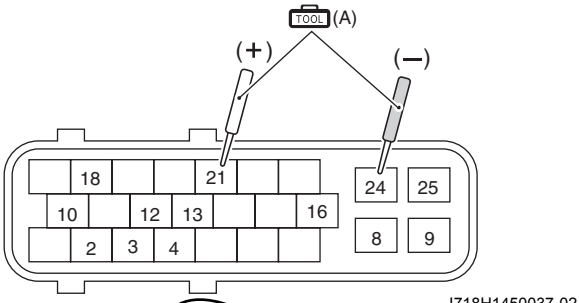
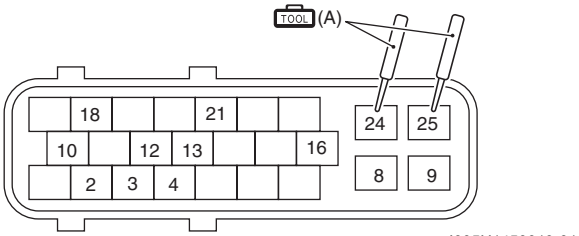
Wiring Diagram

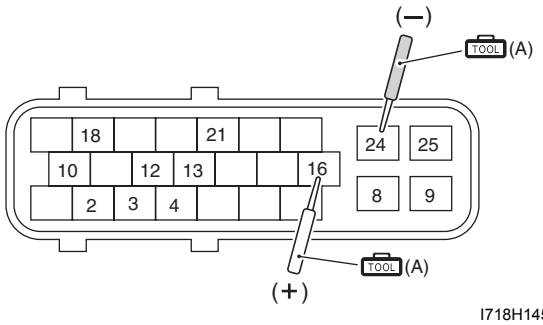
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

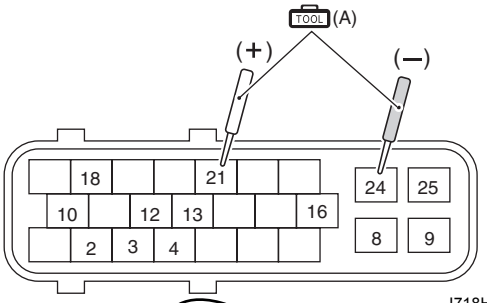
Troubleshooting

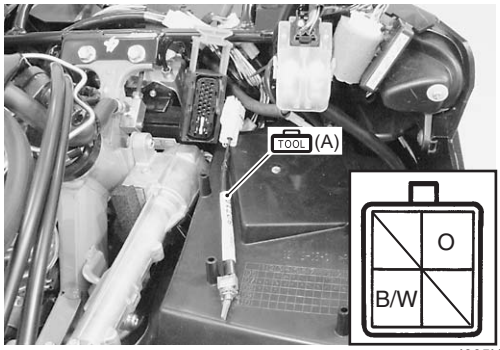
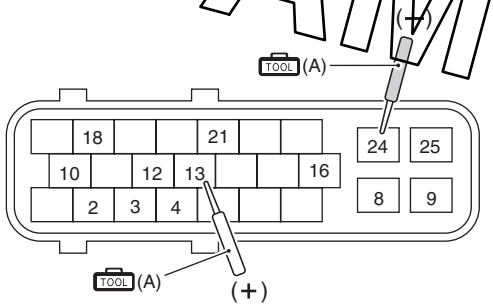
Step	Action	Yes	No
1	1) Check if the ABS indicator light lights up when turning the ignition switch ON.  I905H1450016-01 *Does the ABS indicator light up?*	Go to Step 2.	Go to Step 3.
2	**(The ABS indicator light lights up)** 1) Ride the motorcycle at more than 10 km/h (6.2 mile/h).  I905H1450017-03 *Does the ABS indicator light go off?*	Normal (No DTC exists)	• DTC output (Refer to “DTC (Diagnostic Trouble Code) Output (AN400A/ZAK9)” (Page 4E-22).) • If DTC can not be output (the ABS indicator light does not flash), go to Step 7.

Step	Action	Yes	No
3	**(The ABS indicator light does not light up)** 1) Remove the upper meter panel. Refer to “Upper Meter Panel Removal and Installation” in Section 9D in related manual. 2) Open the fuse box and inspect the signal fuse (1). **⚠ CAUTION** **If a fuse is blown, find the cause of the problem and correct it before replacing the fuse.** **Signal fuse** **15 A**  I905H1450018-01 *Is the signal fuse OK?*	Go to Step 4.	Replace the signal fuse.
4	1) Turn the ignition switch OFF. 2) Disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 3) Turn the ignition switch ON with the ABS control unit coupler disconnected, measure the voltage between “16” (O/Y) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value (“16” – “24”)** **Battery voltage (12.0 V and more)** **ABS control unit coupler (Harness side)**  I718H1450036-04 *Is the voltage between “16” and “24” normal?*	Go to Step 5.	Inspect the wire harness. (Faulty ignition or ground wire)

Step	Action	Yes	No
5	1) Connect the combination meter coupler. 2) Turn the ignition switch ON with the ABS control unit coupler disconnected, measure the voltage between "21" (Br) and "24" (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value ("21" – "24")** **8.0 V and more** **ABS control unit coupler (Harness side)**  I718H1450037-02 *Is the voltage between "21" and "24" normal?*	Go to Step 6.	• Inspect the wire harness. (Faulty indicator light wire) • Signal fuse or indicator light is blown.
6	1) Turn the ignition switch OFF. 2) Check for continuity between "24" (B/W) at the coupler and body ground, also "25" (B/W) at the coupler and body ground. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Continuity (•)))** **ABS control unit coupler (Harness side)**  I905H1450019-01 *Are there continuity between "24", "25" and body ground?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty ground wire)

Step	Action	Yes	No
7	**(The ABS indicator light does not go off)** 1) Turn the ignition switch OFF. 2) Remove the upper meter panel. Refer to “Upper Meter Panel Removal and Installation” in Section 9D in related manual. 3) Open the fuse box and inspect the signal fuse (1). **⚠ CAUTION** **If a fuse is blown, find the cause of the problem and correct it before replacing the fuse.** **Signal fuse** **15 A**  I905H1450013-01 *Is the signal fuse OK?*	Go to Step 8.	Replace the signal fuse.
8	1) Turn the ignition switch OFF. 2) Disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71) 3) Turn the ignition switch ON with the ABS control unit coupler disconnected, measure the voltage between “16” (O/Y) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value (“16” – “24”)** **Battery voltage (12.0 V and more)** **ABS control unit coupler (Harness side)**  I718H1450036-04 *Is the voltage between “16” and “24” normal?*	Go to Step 9.	Inspect the wire harness. (Faulty ignition or ground wire)

Step	Action	Yes	No
9	1) Connect the combination meter coupler. 2) Turn the ignition switch ON with the ABS control unit coupler disconnected, measure the voltage between "21" (Br) and "24" (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value ("21" – "24")** **8.0 V and more** **ABS control unit coupler (Harness side)**  I718H1450037-02 *Is the voltage between "21" and "24" normal?*	Go to Step 10.	Inspect the wire harness. (Faulty indicator light wire)

Step	Action	Yes	No
10	1) Turn the ignition switch OFF. 2) Short the mode select coupler terminals (O – B/W) using the special tool. **Special tool** **TOOL (A): 09930–82710 (Mode select switch)**  I905H1450020-01 3) Check for continuity between “13” (O) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Continuity (•))))** **ABS control unit coupler (Harness side)**  I718H1450043-02 *Is there continuity between “13” and “24”?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty mode select switch wire)

DTC (Diagnostic Trouble Code) Output (AN400A/ZAK9)

B905H14504021

NOTE

- **Even through the ABS is operating correctly, a DTC is memorized in any of the following conditions.**
  - **– If the motorcycle is put on its centerstand, the engine is started and only the rear wheel is rotated.**
  - **– Previous malfunctions were repaired, but the DTCs were not deleted.**
- **After carrying out DTC deleting and ABS operation check, explain to the customer that the ABS is operating correctly. Refer to "DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)" (Page 4E-25).**

Use of Mode Select Switch

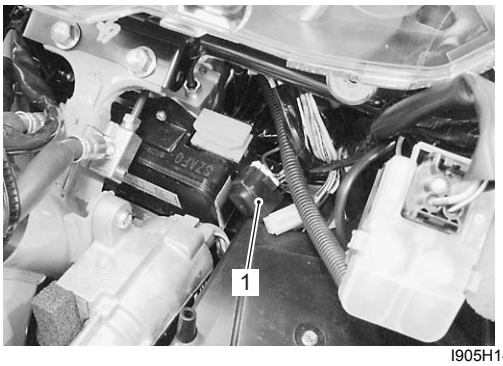
NOTE

- **Don't disconnect couplers from ABS HU, the battery cable from the battery, ABS HU ground wire harness from the engine or main fuse before confirming the malfunction code (self-diagnostic trouble code) stored in memory. Such disconnection will erase the memorized information in ABS HU memory.**
- **Be sure to read "Precautions for Electrical Circuit Service" (Refer to "Precautions for Electrical Circuit Service" in Section 00 in related manual and "Precautions for ABS (AN400A/ZAK9)" (Page 4E-1).) before inspection and observe what is written there.**

Connect the special tool to the mode select coupler to output the memorized DTCs on the ABS indicator light.

1) Turn the ignition switch OFF.
2) Remove the meter panel. Refer to "Meter Panel Removal and Installation" in Section 9D in related manual.
3) Connect the combination meter coupler.
4) Connect the special tool to the mode select coupler (1) (O – B/W).

Special tool
TOOL (A): 09930–82710 (Mode select switch)



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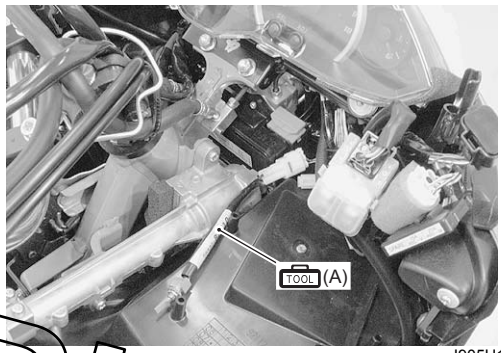
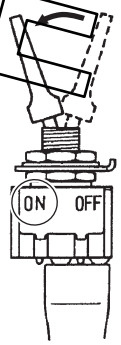


I905H1450006-01

5) Switch the special tool to ON.

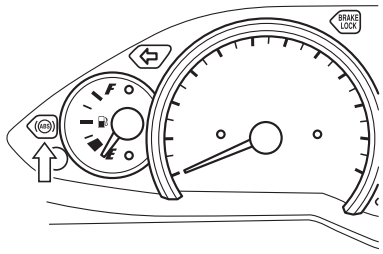


I718H1450040-02

6) Turn the ignition switch ON.
The ABS indicator light starts flashing to indicate the DTC. Refer to “DTC Table (AN400A/ZAK9)” (Page 4E-31).

NOTE

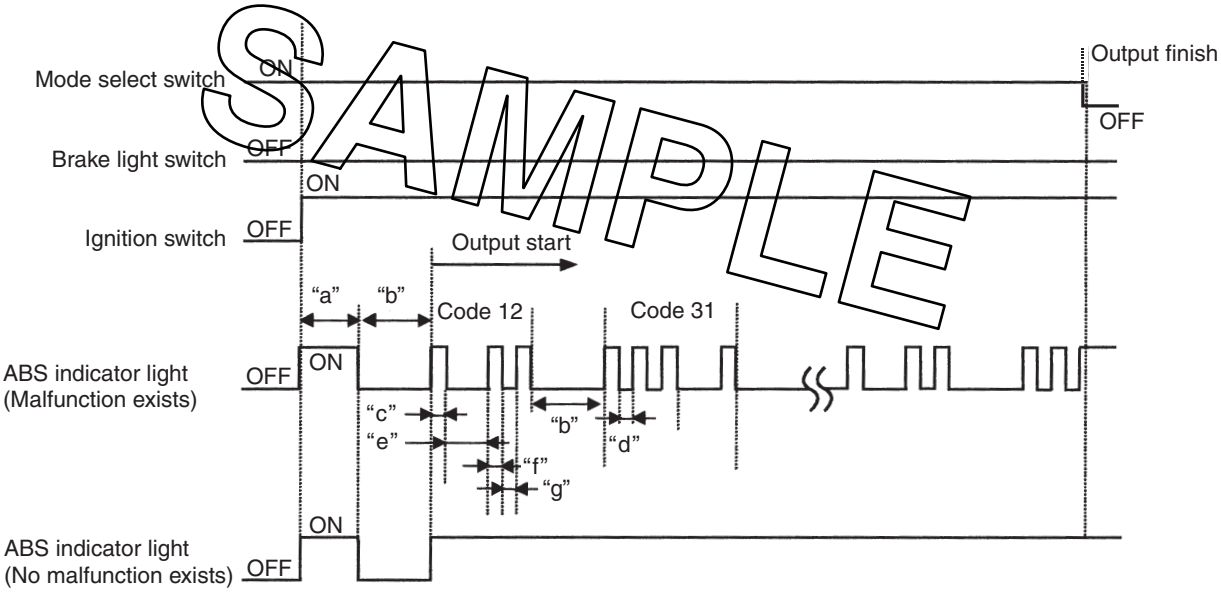
- **If there is a DTC, the ABS indicator light keeps flashing cyclically and repeatedly.**
- **If there is no DTC, the ABS indicator light keeps lighting on.**
- **If the DTCs are to be output for a long time, remove the HEAD-LO fuse in order to prevent the battery from discharging.**



I905H1450074-01

7) Turn the ignition switch OFF and disconnect the special tool.
8) Reinstall the removed parts.

Understanding the DTC (Diagnostic Trouble Code)
A two-digit DTC is shown through the flashing pattern of the ABS indicator light. A number between 1 and 9 is represented by the number of times that the ABS indicator light lights up in interval of 0.4 seconds and the separation between the tens and ones are indicated by the light staying off for 1.6 seconds. In addition, the separation between the start code and the DTC is indicated by the light being off for 3.6 seconds. After the start code is displayed, DTCs appear from the smallest number code.
If no DTCs are memorized, the ABS indicator light keeps lighting up.



I718H1450129-01

“a”: Initial minimum light ON time (About 2 seconds)	“e”: Main-sub code interval (1.6 seconds)
“b”: Error code interval (About 3.6 seconds)	“f”: Sub code light ON time (0.4 seconds)
“c”: Main code light ON time (0.4 seconds)	“g”: Sub code light OFF time (0.4 seconds)
“d”: Main code light OFF time (0.4 seconds)	

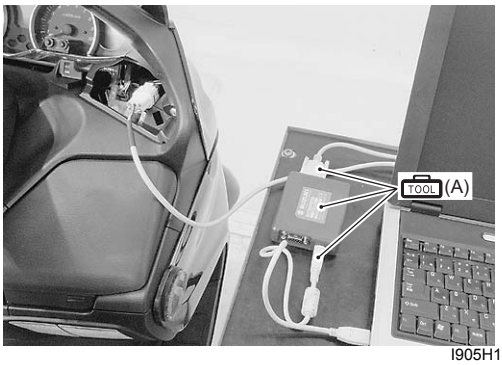
Use of SDS

NOTE

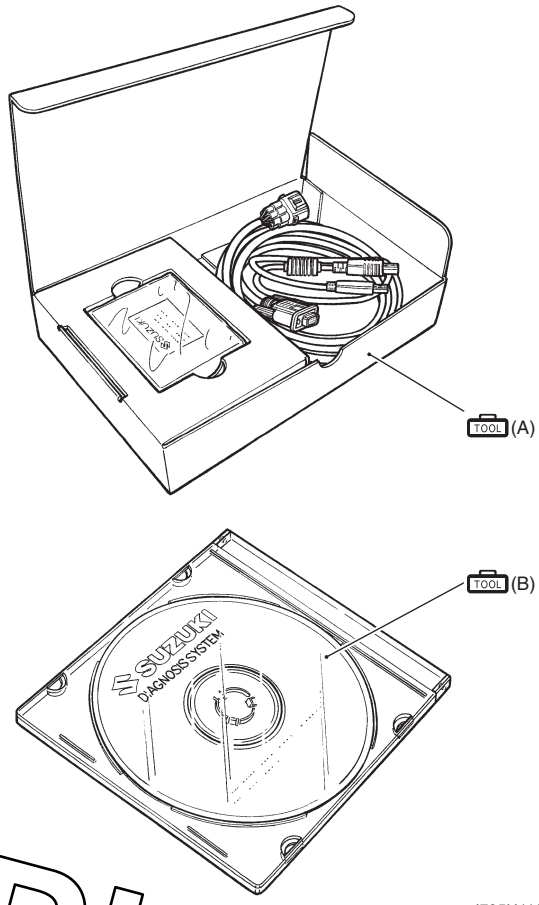
- **Don't disconnect couplers from ABS HU, the battery cable from the battery, ABS HU ground wire harness from the engine or main fuse before confirming the malfunction code (self-diagnostic trouble code) stored in memory. Such disconnection will erase the memorized information in ABS HU memory.**
- **DTC stored in ABS HU memory can be checked by the SDS.**
- **Be sure to read "Precautions for Electrical Circuit Service" (Refer to "Precautions for Electrical Circuit Service" in Section 00 in related manual and "Precautions for ABS (AN400A/ZAK9)" in Section 00 (Page 00-1).) before inspection and observe what is written there.**

1) Remove the upper meter panel. Refer to "Upper Meter Panel Removal and Installation" in Section 9D in related manual.
2) Set up the SDS tool. (Refer to the SDS operation manual for further details.)

Special tool
TOOL (A): 09904–41010 (SUZUKI Diagnostic system set)
TOOL (B): 99565–01010–020 (CD-ROM Ver.20)



I905H1450022-01



I705H1110116-03

3) Read the DTC (Diagnostic Trouble Code) and show data when trouble (displaying data at the time of DTC) according to instructions displayed on SDS.

NOTE

- **Not only is SDS used for detecting Diagnostic Trouble Codes but also for reproducing and checking on screen the failure condition as described by customers using the trigger.**
- **How to use trigger. (Refer to the SDS operation manual for further details.)**

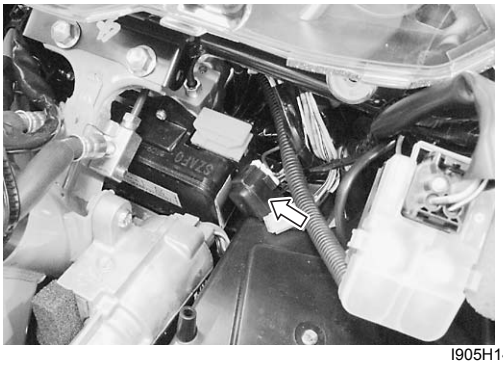
4) Close the SDS tool and turn the ignition switch OFF.
5) Reinstall the removed parts.

DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)

B905H14504022

Use of Mode Select Switch

1) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual.



I905H1450023-01

2) Connect the combination meter coupler.
3) Connect the special tool to the mode select coupler (O – B/W) and output the DTCs.

Special tool
(A): 09930–82710 (Mode select switch)

I905H1450006-01

4) While the DTCs are being output, set the special tool to OFF.

⚠ CAUTION

The DTC deletion mode is started after the switch is set to OFF.

I718H1450050-01

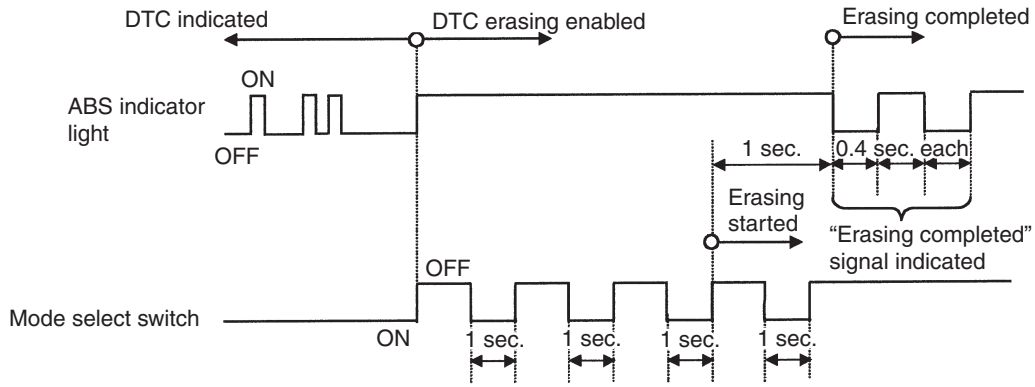
5) In the DTC deletion mode, switch the ABS test switch from OFF to ON three times, each time leaving it at ON for more than 1 second.

NOTE

The DTC deletion can be made within 12.5 seconds after the switch is turned ON.

I718H1450051-01

DTC Deleting Diagram



I718H1450052-02

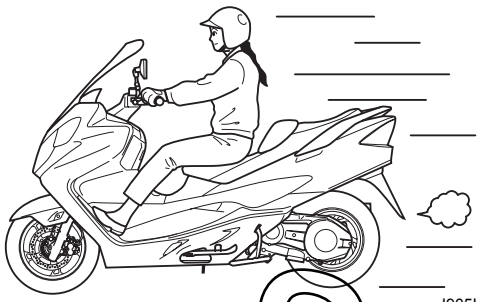
6) After deleting the DTCs, repeat the code output procedure and make sure that no DTCs remain (the ABS indicator light no longer flashes).

NOTE

If any DTCs remain, perform the appropriate procedures, then delete the codes. If DTCs are left stored, confusion may occur and unnecessary repairs may be made.

7) Disconnect the mode select switch and reinstall the removed parts.

8) Afterwards, ride the motorcycle at more than 30 km/h (18.6 mile/h) and quickly apply the brakes to check that the ABS activates correctly.



I905H1450017-03

Use of SDS

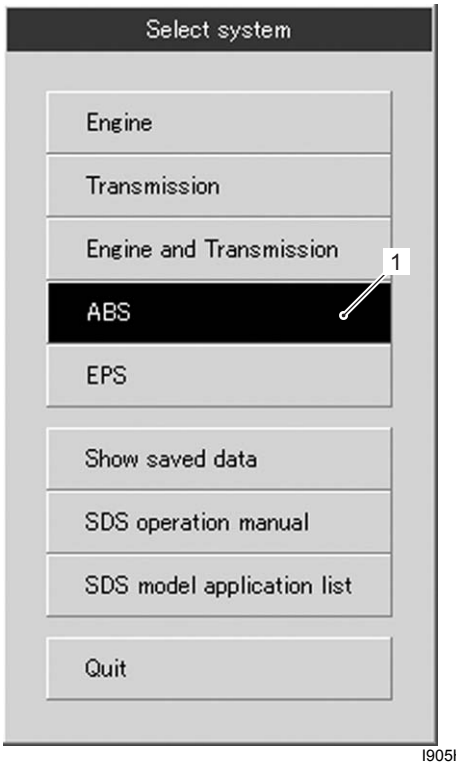
1) Remove the upper meter panel. Refer to "Upper Meter Panel Removal and Installation" in Section 9D in related manual.

2) After repairing the trouble, turn OFF the ignition switch and turn ON again.

3) Set up the SDS tool. (Refer to the SDS operation manual for further details.)

Special tool
(TOOL) : 09904–41010 (SUZUKI Diagnostic system set)
(TOOL) : 99565–01010–020 (CD-ROM Ver.20)

4) Click the ABS button (1).



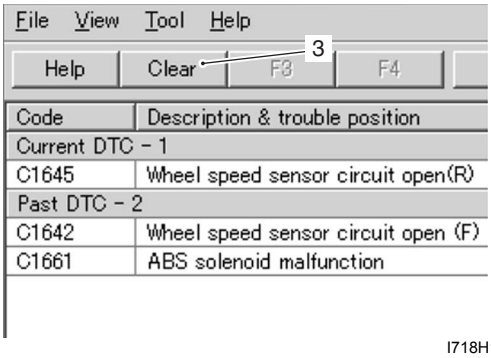
I905H1450084-02

5) Click the "DTC inspection" button (2).

I718H1450055-01

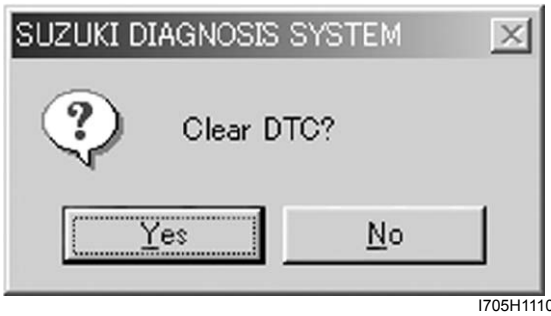
6) Check the DTC.

7) Click "Clear" (3) to delete history code (Past DTC).



I718H1450056-01

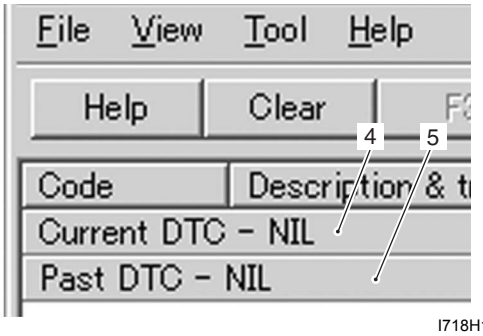
8) Follow the displayed instructions.



I705H1110006-01

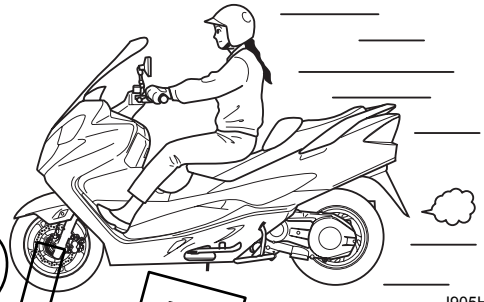
I705H1110009-01

9) Check that both “Current DTC” (4) and “Past DTC” (5) are deleted (NIL).



I718H1450057-01

10) Close the SDS tool and turn the ignition switch OFF.
11) Disconnect the SDS tool and reinstall the removed parts.
12) Ride the motorcycle at more than 30 km/h (18.6 mile/h) and quickly apply the brakes to check that the ABS activates correctly.



I905H1450017-03

B905H14504023

SDS Check (AN400A/ZAK9)

Using SDS, take the sample of data from the new motorcycle and at the time of periodic maintenance at your dealer. Save the data in the computer or by printing and filing the hard copies. The saved or filed data are useful for troubleshooting as they can be compared periodically with changes over time or failure conditions of the motorcycle. For example, when a motorcycle is brought in for service but the troubleshooting is difficult, comparison with the normal data that have been saved or filed can allow the specific ABS failure to be determined.

1) Remove the upper meter panel. Refer to “Upper Meter Panel Removal and Installation” in Section 9D in related manual.
2) Set up the SDS tool. (Refer to “SDS operation manual for further details.)

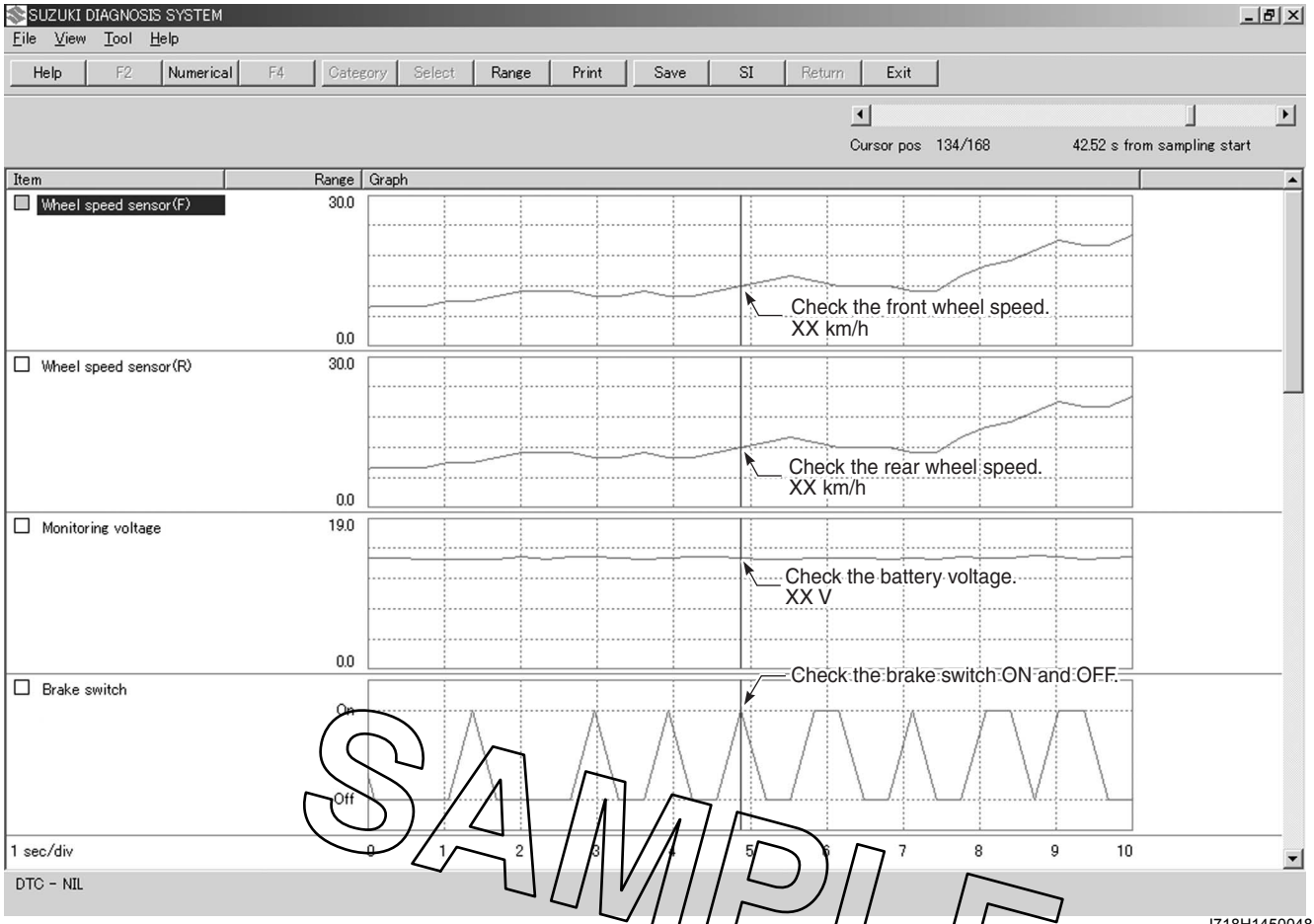
NOTE

- **Before taking the sample of data, check and clear the Past DTC. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).**
- **A number of different data under a fixed condition as shown should be saved or filed as sample.**

Special tool

TOOL : 09904–41010 (SUZUKI Diagnostic system set)
TOOL : 99565–01010–020 (CD-ROM Ver.20)

DATA sampled from ABS HU system



I718H1450048-03

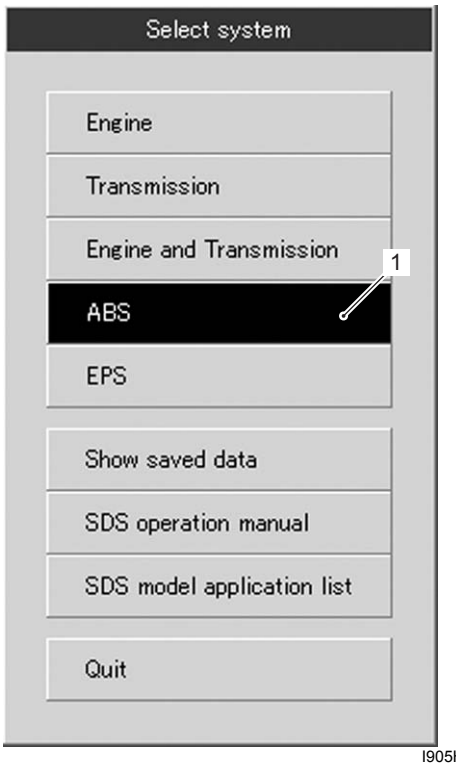
Active Control Inspection (AN400A/ZAK9)

B905H14504024

1) Remove the upper meter panel. Refer to “Upper Meter Panel Removal and Installation” in Section 9D in related manual.
2) Set up the SDS tool. (Refer to the SDS operation manual for further details.)

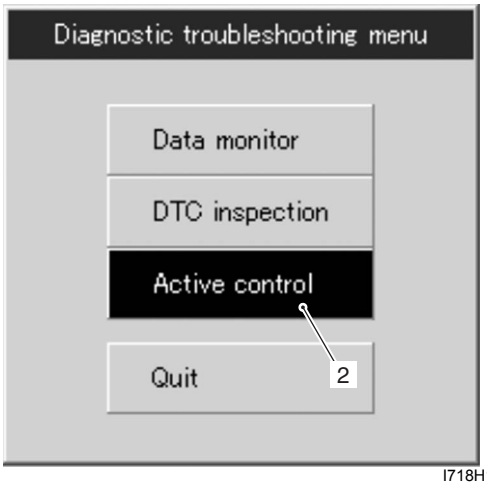
Special tool
TOOL : 09904–41010 (SUZUKI Diagnostic system set)
TOOL : 99565–01010–020 (CD-ROM Ver.20)

3) Click “ABS” (1).



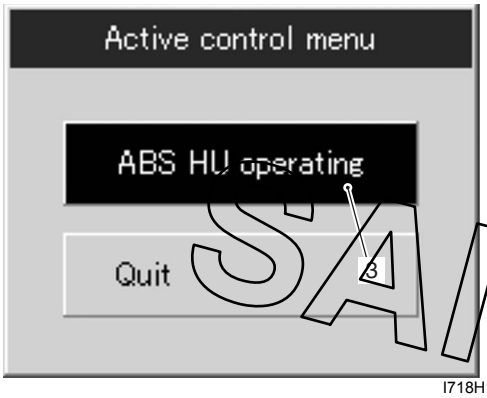
I905H1450084-02

4) Click “Active control” (2).



I718H1450058-01

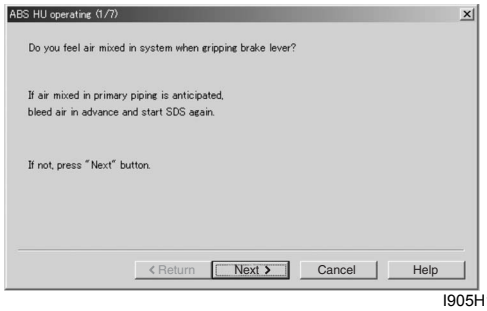
5) Click “ABS HU operating” (3).



I718H1450059-01

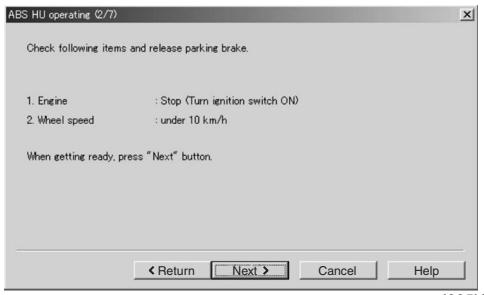
6) Click “Next” according to the screen indication.

a) ABS HU operating (1/7)



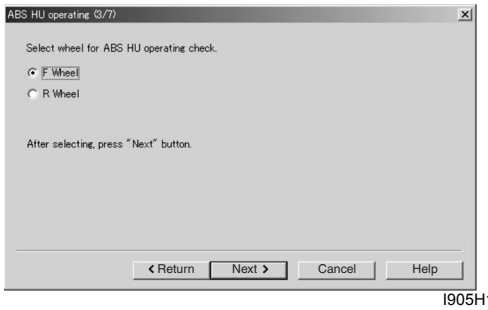
I905H1450025-01

b) ABS HU operating (2/7)



I905H1450026-01

c) ABS HU operating (3/7)

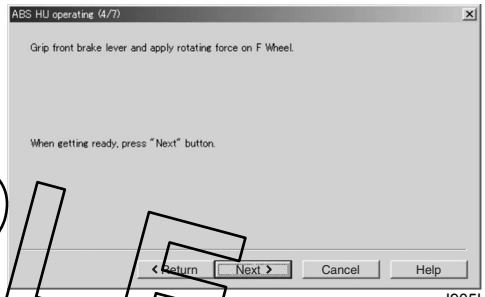


I905H1450027-01

NOTE

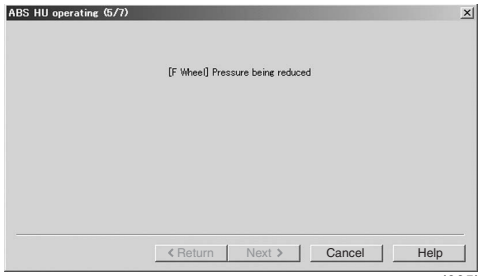
- **If the front wheel is selected, place the motorcycle on the center stand and lift the front wheel off the ground using a jack.**
- **Two operators are needed in this work; One should apply a rotational force to the front wheel.**

d) ABS HU operating (4/7)



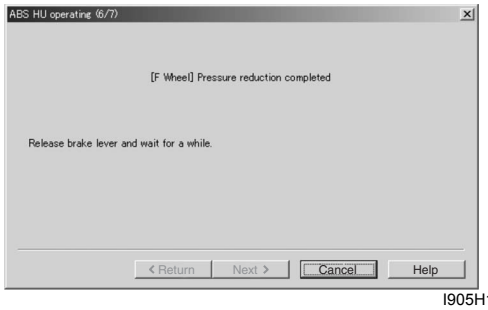
I905H1450028-01

e) ABS HU operating (5/7)



I905H1450029-01

f) ABS HU operating (6/7)

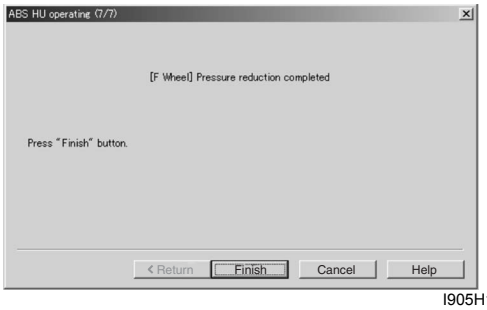


I905H1450030-01

NOTE

- **In normal cases, the front brake lever feels a reaction force and the front wheel turns discontinuously. At the same time, the ABS HU operating sound will be heard.**
- **The ABS HU motor operates for 6 seconds and then stops automatically.**

g) ABS HU operating (7/7)



I905H1450031-01

NOTE

- **Inspect the rear brake in the same manner of front brake.**
- **If the ABS does not function, the cause may lie in the ABS control unit/HU.**

7) Close the SDS tool and turn the ignition switch OFF.
8) Disconnect the SDS tool and reinstall the removed parts.

DTC Table (AN400A/ZAK9)

B905H14504002

DTC	Malfunction cause	Indicator status	Reference
None	Normal	ON *1	—
13 (C1613)	Wheel speed sensor rotor malfunction (F)	ON	Refer to “DTC “13” (C1613): Wheel Speed Sensor Rotor Malfunction (F) (AN400A/ZAK9)” (Page 4E-32).
14 (C1614)	Wheel speed sensor rotor malfunction (R)	ON	Refer to “DTC “14” (C1614): Wheel Speed Sensor Rotor Malfunction (R) (AN400A/ZAK9)” (Page 4E-34).
22 (C1622)	ABS actuator circuit malfunction (F)	ON	Refer to “DTC “22” (C1622): ABS Actuator Circuit Malfunction (F) (AN400A/ZAK9)” (Page 4E-36).
23 (C1623)	ABS actuator circuit malfunction (R)	ON	Refer to “DTC “23” (C1623): ABS Actuator Circuit Malfunction (R) (AN400A/ZAK9)” (Page 4E-38).
25 (C1625)	Wheel speed sensor related malfunction	ON	Refer to “DTC “25” (C1625): Wheel Speed Sensor Related Malfunction (AN400A/ZAK9)” (Page 4E-40).
35 (C1635)	ABS motor malfunction	ON	Refer to “DTC “35” (C1635): ABS Motor Malfunction (AN400A/ZAK9)” (Page 4E-42).
41 (C1641)	Wheel speed sensor signal malfunction (F) *2	ON	Refer to “DTC “41” (C1641): Wheel Speed Sensor Signal Malfunction (F) (AN400A/ZAK9)” (Page 4E-44).
42 (C1642)	Wheel speed sensor circuit open (F) *2	ON	Refer to “DTC “42” (C1642): Wheel Speed Sensor Circuit Open (F) (AN400A/ZAK9)” (Page 4E-46).
43 (C1643)	Wheel speed sensor circuit short (F) *2	ON	Refer to “DTC “43” (C1643): Wheel Speed Sensor Circuit Short (F) (AN400A/ZAK9)” (Page 4E-52).
44 (C1644)	Wheel speed sensor signal malfunction (R) *2	ON	Refer to “DTC “44” (C1644): Wheel Speed Sensor Signal Malfunction (R) (AN400A/ZAK9)” (Page 4E-54).
45 (C1645)	Wheel speed sensor circuit open (R) *2	ON	Refer to “DTC “45” (C1645): Wheel Speed Sensor Circuit Open (R) (AN400A/ZAK9)” (Page 4E-56).
46 (C1646)	Wheel speed sensor circuit short (R) *2	ON	Refer to “DTC “46” (C1646): Wheel Speed Sensor Circuit Short (R) (AN400A/ZAK9)” (Page 4E-61).
47 (C1647)	Supply voltage (Increased)	ON	Refer to “DTC “47” (C1647): Supply Voltage (Increased) (AN400A/ ZAK9)” (Page 4E-63).
48 (C1648)	Supply voltage (Decreased)	ON	Refer to “DTC “48” (C1648): Supply Voltage (Decreased) (AN400A/ ZAK9)” (Page 4E-65).
55 (C1655)	ABS control unit malfunction	ON	Refer to “DTC “55” (C1655): ABS Control Unit Malfunction (AN400A/ ZAK9)” (Page 4E-67).
61 (C1661)	ABS solenoid malfunction	ON	Refer to “DTC “61” (C1661): ABS Solenoid Malfunction (AN400A/ ZAK9)” (Page 4E-69).

*1: It goes off after running at more than 10 km/h (6.2 mile/h).

*2: The wheel speed sensor lead wire is connected to the ABS control unit, but a short-circuit or faulty continuity inside the ABS control unit caused this DTC to appear, therefore, the ABS control unit/HU assembly must be replaced. An insufficient wheel speed sensor output voltage is the cause of a malfunction in which the ABS is activated even if the brakes are not suddenly applied. If this occurs frequently even though the wheel speed sensor is operating correctly, the ABS control unit/HU assembly should be replaced.

⚠ CAUTION

When disconnecting couplers and turning the ignition switch ON, disconnect the ABS control unit coupler in order to prevent a DTC from being stored. Each time a resistance is measured, the ignition switch should be set to OFF.

DTC "13" (C1613): Wheel Speed Sensor Rotor Malfunction (F) (AN400A/ZAK9)

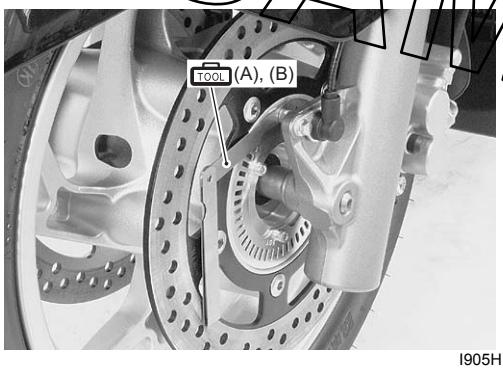
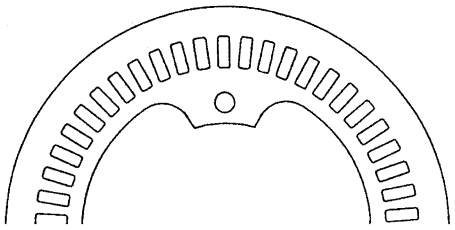
B905H14504003

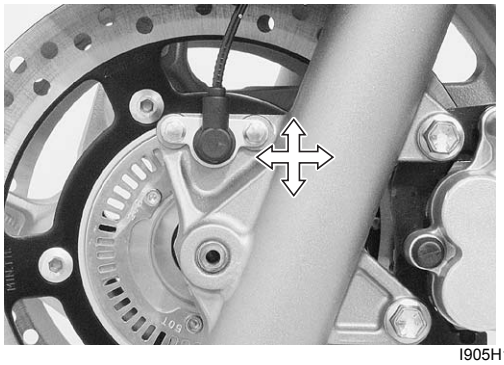
Possible Cause
• Front wheel speed sensor rotor distortion
• Faulty front wheel speed sensor or wiring discontinuity, etc.

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to "DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)" (Page 4E-25).

Step	Action	Yes	No
1	1) Inspect the clearance between the front wheel speed sensor and sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **0.36 – 1.62 mm (0.014 – 0.064 in)**  I905H1240005-02 *Is the clearance OK?*	Go to Step 2.	Adjust the clearance.
2	1) Inspect the front wheel speed sensor rotor for damage and check that no foreign objects are caught in the rotor openings.  I718H1450064-01 *Is the sensor rotor OK?*	Go to Step 3.	Clean or replace the sensor rotor.

Step	Action	Yes	No
3	1) Check that the front wheel speed sensor is mounted securely.  I905H1450032-01 *Is the sensor mounted securely?*	Go to Step 4.	Tighten the mounting bolts.
4	1) Inspect the front tire and wheel. Refer to “Tire Inspection” in Section 0B in related manual and “Front Wheel Related Parts Inspection” in Section 2D in related manual. **Tire type and size** **BRIDGESTONE HOOP B03 G, 120/80-14M/C 58S** **Cold inflation tire pressure (Solo riding)** **175 kPa (1.75 kgf/cm^2, 25 psi)** **Cold inflation tire pressure (Dual riding)** **175 kPa (1.75 kgf/cm^2, 25 psi)** **Wheel runout** **Service limit (axial and radial): 2.0 mm (0.08 in)**  I905H1450033-01 *Are the front tire type, tire pressure and wheel runout OK?*	Replace the ABS control unit/HU.	Adjust or replace the front tire and wheel.

DTC “14” (C1614): Wheel Speed Sensor Rotor Malfunction (R) (AN400A/ZAK9)

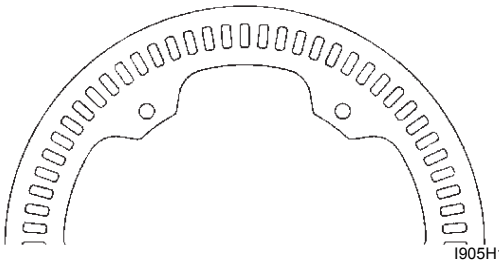
B905H14504004

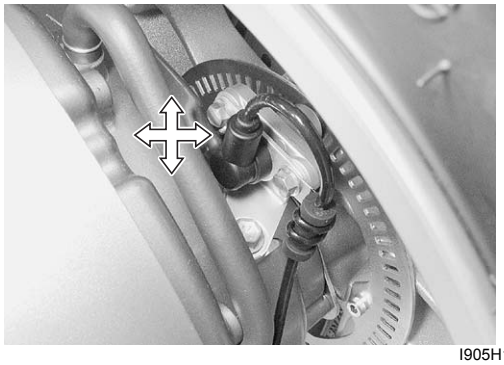
Possible Cause
• Rear wheel speed sensor rotor distortion
• Faulty rear wheel speed sensor or wiring discontinuity, etc.

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Inspect the clearance between the rear wheel speed sensor and sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **0.16 – 1.62 mm (0.006 – 0.064 in)**  I905H1240009-02 *Is the clearance OK?*	Go to Step 2.	Adjust the clearance.
2	1) Inspect the rear wheel speed sensor rotor for damage and check that no foreign objects are caught in the rotor openings.  I905H1450034-01 *Is the sensor rotor OK?*	Go to Step 3.	Clean or replace the sensor rotor.

Step	Action	Yes	No
3	1) Check that the rear wheel speed sensor is mounted securely.  I905H1450035-01 *Is the sensor mounted securely?*	Go to Step 4.	Tighten the mounting bolts or replace the bracket if necessary.
4	1) Inspect the rear tire and wheel. Refer to “Tire Inspection” in Section 0B in related manual and “Rear Wheel Related Parts Inspection” in Section 2D in related manual. **Tire type and size** **BRIDGESTONE HOOP B02 G, 150/70-13 M/C 64S** **Cold inflation tire pressure (Solo riding)** **200 kPa (2.00 kgf/cm^2, 29 psi)** **Cold inflation tire pressure (Dual riding)** **250 kPa (2.50 kgf/cm^2, 36 psi)** **Wheel runout** **Service limit (axial and radial): 2.0 mm (0.08 in)**  I905H1450036-01 *Are the rear tire type, tire pressure and wheel runout OK?*	Replace the ABS control unit/HU.	Adjust or replace the rear tire and wheel.

DTC “22” (C1622): ABS Actuator Circuit Malfunction (F) (AN400A/ZAK9)

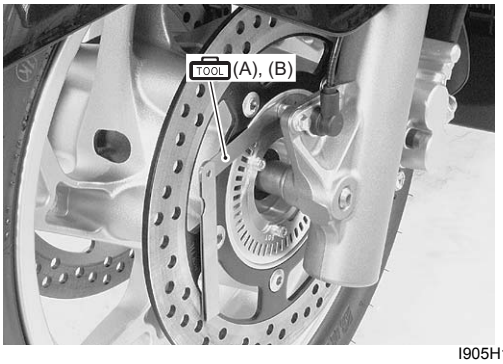
B905H14504005

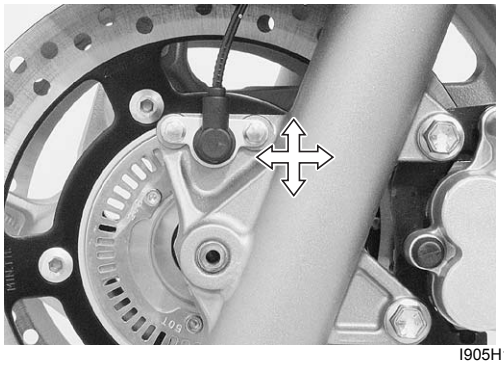
Possible Cause
• Wire harness discontinuity • Front wheel locking, etc.

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Raise the front wheel off the ground and support the motorcycle with a jack or wooden block. 2) Inspect the dragging of the front brake.  I905H1450033-01 *Is there any dragging in the front brake?*	Inspect the front brake master cylinder and the calipers.	Go to step 2.
2	1) Inspect the clearance between the front wheel speed sensor and sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **0.36 – 1.62 mm (0.014 – 0.064 in)**  I905H1240005-02 *Is the clearance OK?*	Go to Step 3.	Adjust the clearance.

Step	Action	Yes	No
3	1) Check that the front wheel speed sensor is mounted securely.  I905H1450032-01 *Is the sensor mounted securely?*	Replace the ABS control unit/HU.	Tighten the mounting bolts.

DTC “23” (C1623): ABS Actuator Circuit Malfunction (R) (AN400A/ZAK9)

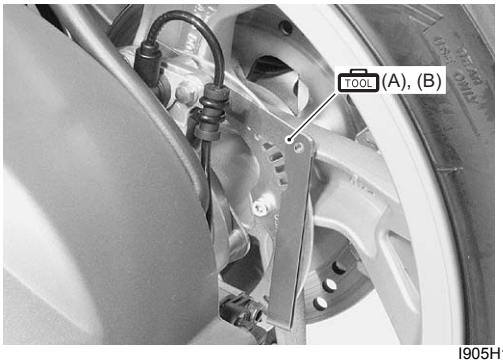
B905H14504006

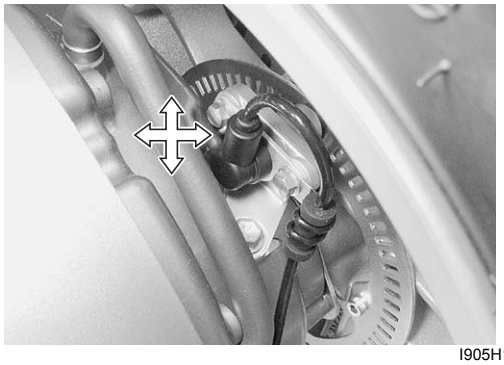
Possible Cause
• Wire harness discontinuity • Rear wheel locking, etc.

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Support the motorcycle with its center stand. 2) Inspect the dragging of the rear brake.  I905H14500036-01 *Is there any dragging in the rear brake?*	Inspect the rear brake master cylinder, caliper and parking brake cable.	Go to step 2.
2	1) Inspect the clearance between the rear wheel speed sensor and sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **0.16 – 1.62 mm (0.006 – 0.064 in)**  I905H1240009-02 *Is the clearance OK?*	Go to Step 3.	Adjust the clearance.

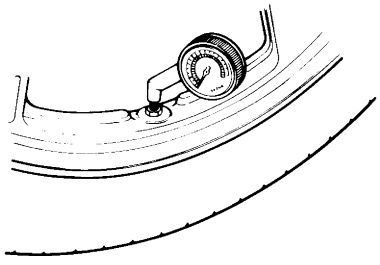
Step	Action	Yes	No
3	1) Check that the rear wheel speed sensor is mounted securely.  I905H1450035-01 *Is the sensor mounted securely?*	Replace the ABS control unit/HU.	Tighten the mounting bolts or replace the bracket if necessary.

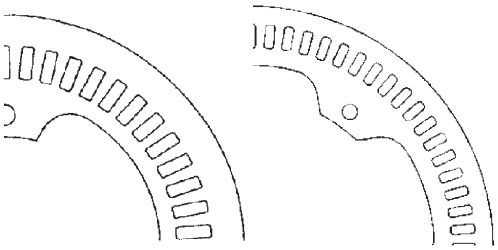
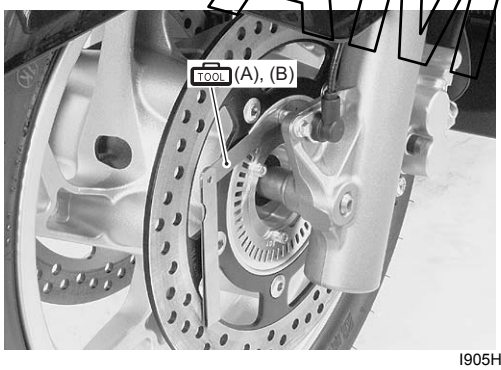
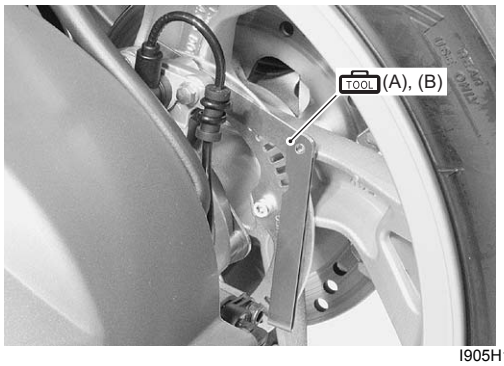
DTC “25” (C1625): Wheel Speed Sensor Related Malfunction (AN400A/ZAK9)

B905H14504007

Possible Cause
• Incorrect tire size, poor tire pressure
• Deformed wheel, etc.

Troubleshooting

Step	Action	Yes	No
1	1) Check that the specified tires are installed. **Tire type and size** **Front: BRIDGESTONE HOOP B03 G, 120/80-14M/C 58S** **Rear: BRIDGESTONE HOOP B02 G, 150/70-13M/C 64S**  I905H1450037-02 *Are the tires OK?*	Go to Step 2.	Use the specified tires.
2	1) Make sure the tire pressure for each tire. Refer to “Tire Inspection” in Section 0B in related manual. **Cold inflation tire pressure (Solo riding)** **Front: 175 kPa (1.75 kgf/cm², 25 psi)** **Rear: 200 kPa (2.00 kgf/cm², 29 psi)** **Cold inflation tire pressure (Dual riding)** **Front: 175 kPa (1.75 kgf/cm², 25 psi)** **Rear: 250 kPa (2.50 kgf/cm², 36 psi)**  I718H1450071-01 *Is the tire pressure for each tire correct?*	Go to Step 3.	Adjust the tire pressure.

Step	Action	Yes	No
3	1) Inspect both wheel speed sensor rotors for damage and check that no foreign objects are caught in the rotor openings.  I905H1450049-01 *Are the rotors OK?*	Go to Step 4.	Clean or replace the rotor.
4	1) Inspect the clearances of the front and rear wheel speed sensor – sensor rotor using the thickness gauge. **Special tool** **(A): 09900–20803 (Thickness gauge)** **(B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **Front: 0.36 – 1.62 mm (0.014 – 0.064 in)** **Rear: 0.16 – 1.62 mm (0.006 – 0.064 in)** **Front**  I905H1240005-02 **Rear**  I905H1240009-02 *Are the clearances OK?*	Replace the ABS control unit/HU.	Adjust the clearance.

DTC “35” (C1635): ABS Motor Malfunction (AN400A/ZAK9)

B905H14504008

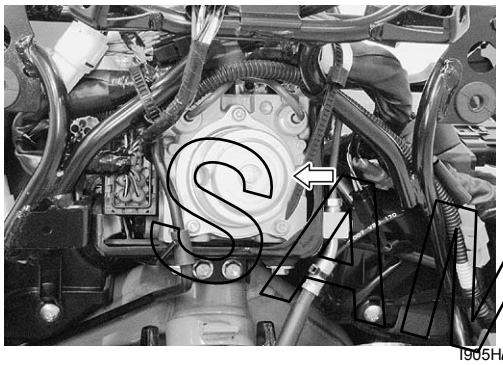
Possible Cause
• Faulty HU motor • Faulty wiring, etc.

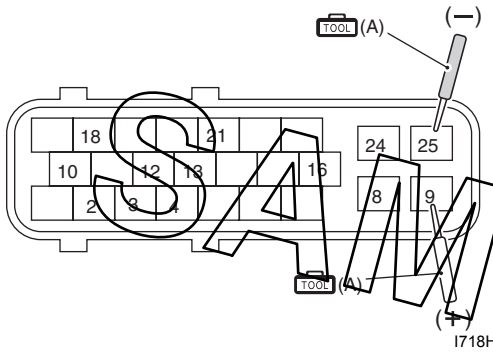
Wiring Diagram
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Inspect if the pump motor makes turning noise by setting the ignition switch to ON from OFF when the vehicle stands still.  I905H1450039-01 *Does the pump motor make any turning noise?*	• Faulty HU motor • Replace the ABS control unit/HU.	Go to Step 2.
2	1) Remove the upper meter panel. Refer to “Upper Meter Panel Removal and Installation” in Section 9D in related manual. 2) Inspect the ABS motor fuse (1). **⚠ CAUTION** **If a fuse is blown, find the cause of the problem and correct it before replacing the fuse.** **ABS motor fuse** **20 A**  I905H1450040-01 *Is the ABS motor fuse OK?*	Go to Step 3.	Replace the ABS motor fuse.

Step	Action	Yes	No
3	1) Turn the ignition switch OFF. 2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 3) Check the ABS control unit coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 4) Measure the voltage between “9” (R/B) and “25” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value (“9” – “25”)** **Battery voltage (12.0 V and more)** **ABS control unit coupler (Harness side)**  I718H1450076-02 *Is the voltage between “9” and “25” normal?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty motor power supply or ground wire)

DTC “41” (C1641): Wheel Speed Sensor Signal Malfunction (F) (AN400A/ZAK9)

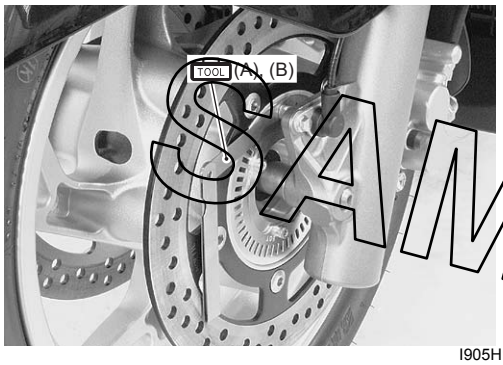
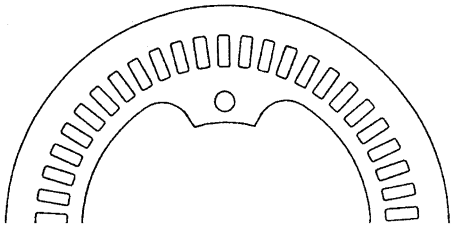
B905H14504009

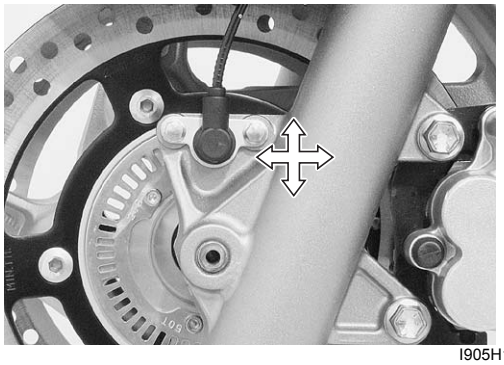
Possible Cause
• Poor contact in the front wheel speed sensor coupler
• Faulty front wheel speed sensor, etc.

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Inspect the clearance between the front wheel speed sensor and sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **0.36 – 1.62 mm (0.014 – 0.064 in)**  I905H1240005-02 *Is the clearance OK?*	Go to Step 2.	Adjust the clearance.
2	1) Inspect the front wheel speed sensor rotor for damage and check that no foreign objects are caught in the rotor openings.  I718H1450064-01 *Is the sensor rotor OK?*	Go to Step 3.	Clean or replace the sensor rotor.

Step	Action	Yes	No
3	1) Check that the front wheel speed sensor is mounted securely.  I905H1450032-01 *Is the sensor mounted securely?*	Go to DTC “42” (C1642). (Refer to “DTC “42” (C1642): Wheel Speed Sensor Circuit Open (F) (AN400A/ ZAK9)” (Page 4E-46).)	Tighten the mounting bolts.

DTC “42” (C1642): Wheel Speed Sensor Circuit Open (F) (AN400A/ZAK9)

B905H14504010

Possible Cause
• Poor contact in the front wheel speed sensor coupler • Faulty front wheel speed sensor, etc.

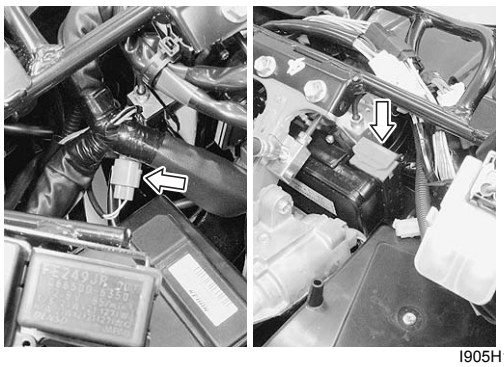
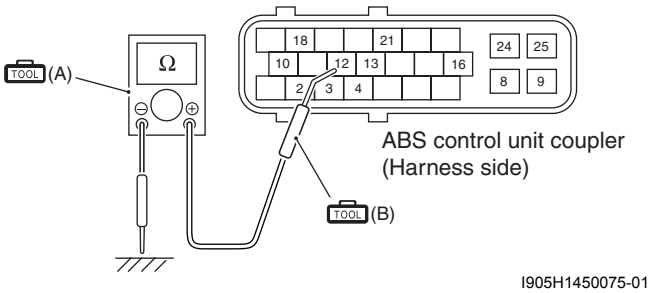
Wiring Diagram

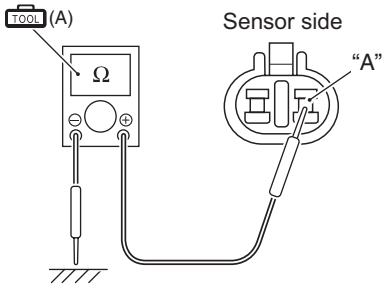
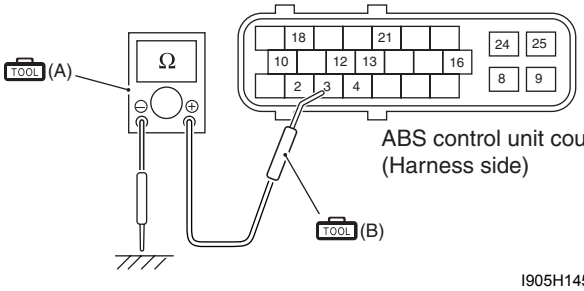
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

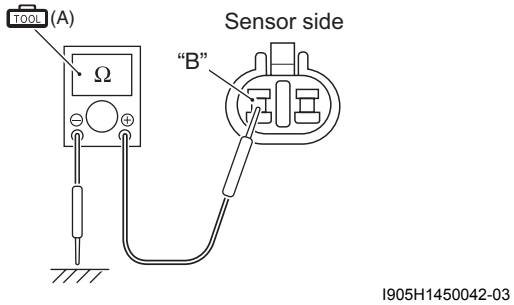
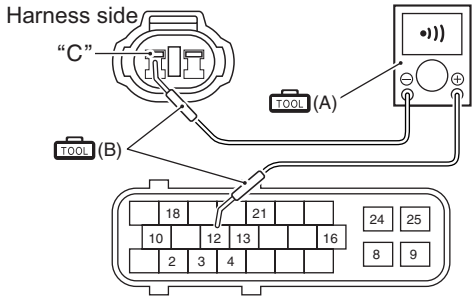
Troubleshooting

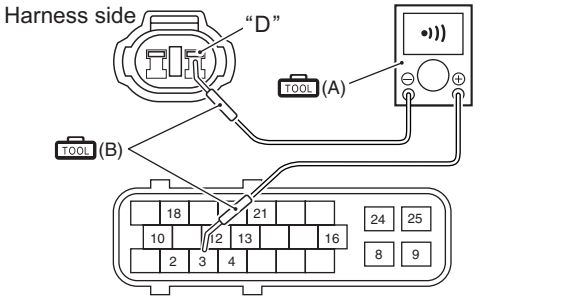
NOTE

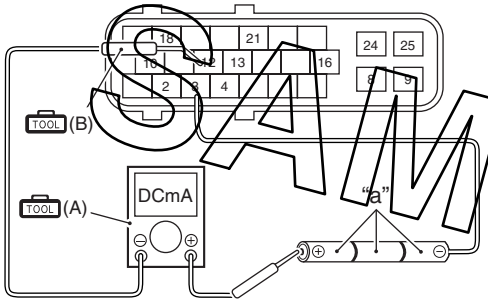
After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 3) Check the ABS control unit coupler and front wheel speed sensor coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71).  I905H1450041-01 4) Measure the resistance between “12” (B/R) and ground at the ABS control unit coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“12” – Ground)** **∞ Ω (Infinity)**  I905H1450075-01 *Is the resistance between “12” and ground OK?*	Go to Step 3.	Go to Step 2.

Step	Action	Yes	No
2	1) Disconnect the front wheel speed sensor coupler. 2) Measure the resistance between “A” (W) and ground at the front wheel speed sensor coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“A” – Ground)** **∞ Ω (Infinity)**  I905H1450082-01 *Is the resistance between “A” and ground OK?*	Inspect the wire harness. (Faulty B/R wire)	Faulty front wheel speed sensor
3	1) Measure the resistance between “3” (W/R) and ground at the ABS control unit coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“3” – Ground)** **∞ Ω (Infinity)**  I905H1450076-01 *Is the resistance between “3” and ground OK?*	Go to Step 5.	Go to Step 4.

Step	Action	Yes	No
4	1) Measure the resistance between “B” (Bl) and ground at the front wheel speed sensor coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“B” – Ground)** **∞ Ω (Infinity)**  I905H1450042-03 *Is the resistance between “B” and ground OK?*	Inspect the wire harness. (Faulty W/R wire)	Faulty front wheel speed sensor
5	1) Check for continuity between “12” (B/R) on the ABS control unit coupler and “C” (B/R) on the front wheel speed sensor coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Continuity test (•)))** **Normal value (“12” – “C”)** **Continuity (•)))**  ABS control unit coupler (Harness side) I905H1450043-01 *Is there continuity between “12” and “C”?*	Go to Step 6.	Inspect the wire harness. (Faulty B/R wire)

Step	Action	Yes	No
6	1) Check for continuity between “3” (W/R) on the ABS control unit coupler and “D” (W/R) on the front wheel speed sensor coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Continuity test (•)))** **Normal value (“3” – “D”)** **Continuity (•)))**  ABS control unit coupler (Harness side) I905H1450044-01 *Is there continuity between “3” and “D”?*	Go to Step 7.	Inspect the wire harness. (Faulty W/R wire)

Step	Action	Yes	No
7	1) Connect the front wheel speed sensor coupler. 2) Connect three 1.5 V dry cells “a” in series as shown and make sure that their total voltage is more than 4.5 V. Measure the current between (+) dry cell terminal and “12” (B/R) on the ABS control unit coupler. **⚠ CAUTION** **Dry cells connection in reverse polarity is strictly prohibited. Such a wrong connection will damage the wheel speed sensor when reverse power is applied.** **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Current (⎓ , 20 mA)** **Normal value** **5 – 17 mA** ABS control unit coupler (Harness side)  I905H1450077-01 *Is the current OK?*	Replace the ABS control unit/HU.	Faulty front wheel speed sensor

DTC “43” (C1643): Wheel Speed Sensor Circuit Short (F) (AN400A/ZAK9)

B905H14504011

Possible Cause
• Poor contact in the front wheel speed sensor coupler
• Faulty front wheel speed sensor, etc.

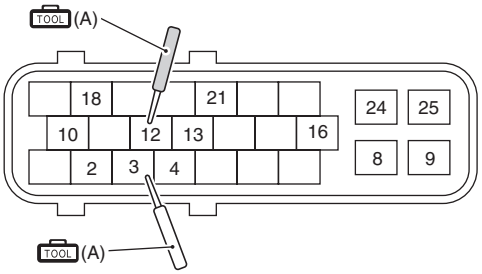
Wiring Diagram

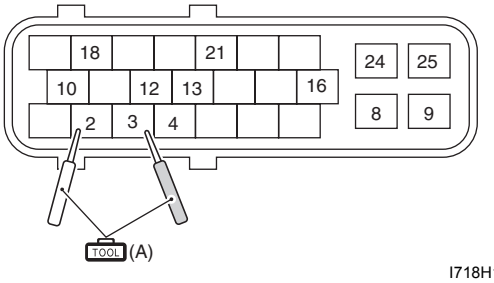
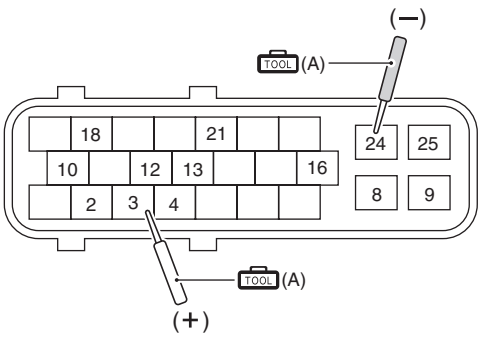
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 3) Check the ABS control unit coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 4) Check for continuity between “3” (W/R) and “12” (B/R) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Continuity (•)))** **ABS control unit coupler (Harness side)**  I718H1450085-02 *Is there continuity between “3” and “12”?*	• Inspect the wire harness. (Faulty sensor wire) • Faulty front wheel speed sensor	Go to Step 2.

Step	Action	Yes	No
2	1) Check for continuity between “2” (B/Y) and “3” (W/R) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Continuity (•)))** **ABS control unit coupler (Harness side)**  I718H1450086-02 *Is there continuity between “2” and “3”?*	• Inspect the wire harness. (Faulty sensor wire) • Faulty front wheel speed sensor	Go to Step 3.
3	1) Turn the ignition switch ON with the ABS control unit coupler disconnected, measure the voltage between “3” (W/R) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value (“3” – “24”)** **0 V** **ABS control unit coupler (Harness side)**  I718H1450087-02 *Is the voltage between “3” and “24” normal value?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty sensor signal or power supply wire)

DTC “44” (C1644): Wheel Speed Sensor Signal Malfunction (R) (AN400A/ZAK9)

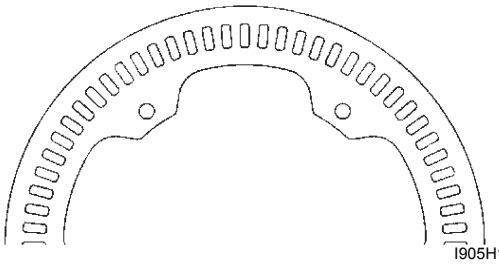
B905H14504012

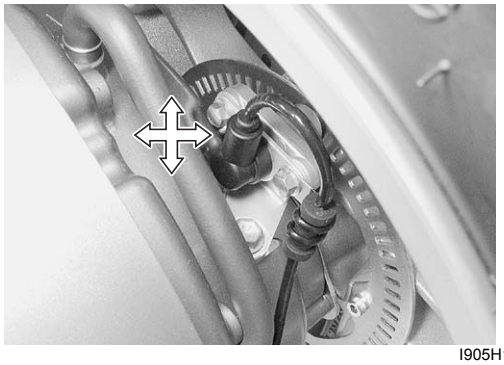
Possible Cause
• Poor contact in the rear wheel speed sensor coupler
• Faulty rear wheel speed sensor, etc.

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Inspect the clearance between the rear wheel speed sensor and sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **0.16 – 1.62 mm (0.006 – 0.064 in)**  I905H1240009-02 *Is the clearance OK?*	Go to Step 2.	Adjust the clearance.
2	1) Inspect the rear wheel speed sensor rotor for damage and check that no foreign objects are caught in the rotor openings.  I905H1450034-01 *Is the sensor rotor OK?*	Go to Step 3.	Clean or replace the sensor rotor.

Step	Action	Yes	No
3	1) Check that the rear wheel speed sensor is mounted securely.  I905H1450035-01 *Is the sensor mounted securely?*	Go to DTC “45” (C1645). (Refer to “DTC “45” (C1645): Wheel Speed Sensor Circuit Open (R) (AN400A/ ZAK9)” (Page 4E-56).)	Tighten the mounting bolts or replace the bracket if necessary.

DTC “45” (C1645): Wheel Speed Sensor Circuit Open (R) (AN400A/ZAK9)

B905H14504013

Possible Cause
• Poor contact in the rear wheel speed sensor coupler
• Faulty rear wheel speed sensor, etc.

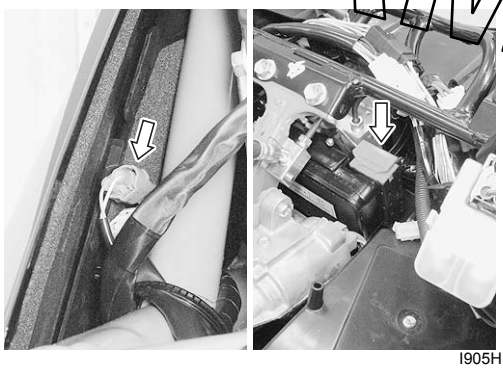
Wiring Diagram

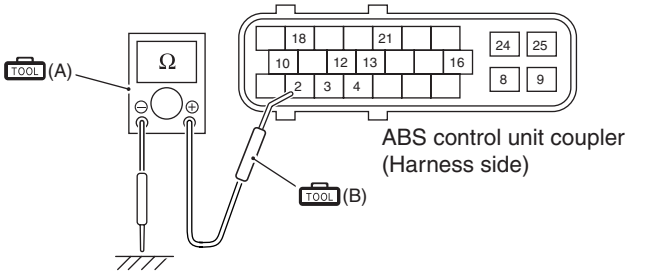
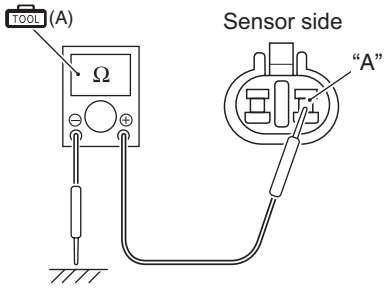
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

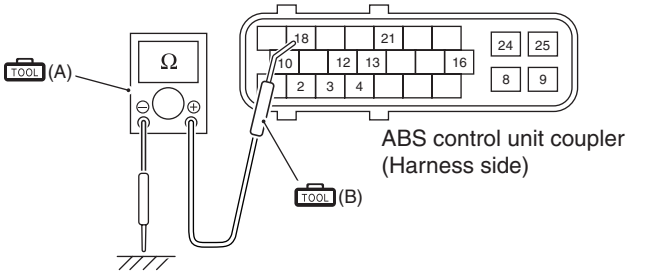
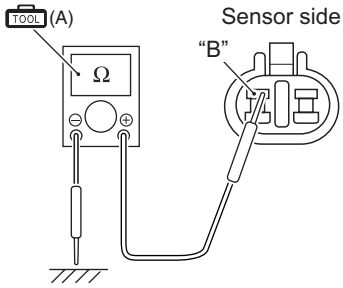
Troubleshooting

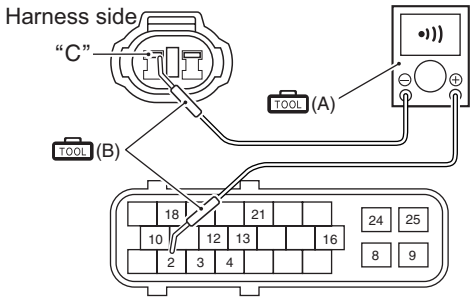
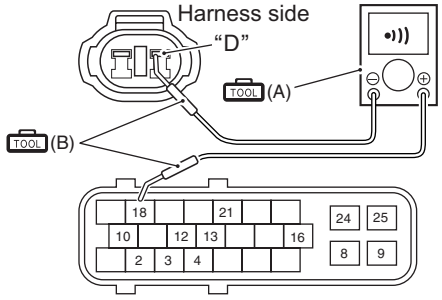
NOTE

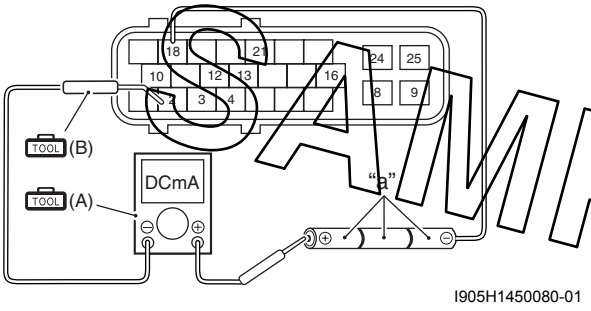
After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Remove the helmet box front cover. Refer to “Helmet Box Front Cover Removal and Installation” in Section 9D in related manual. 3) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 4) Check the ABS control unit coupler and rear wheel speed sensor coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71).  I905H1450045-01	Go to Step 3.	Go to Step 2.

Step	Action	Yes	No
1	5) Measure the resistance between “2” (B/Y) and ground at the ABS control unit coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“2” – Ground)** **∞ Ω (Infinity)**  I905H1450078-01 *Is the resistance between (2) and ground OK?*	Go to Step 3.	Go to Step 2.
2	1) Disconnect the rear wheel speed sensor coupler. 2) Measure the resistance between “A” (W) and ground at the rear wheel speed sensor coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“A” – Ground)** **∞ Ω (Infinity)**  I905H1450082-01 *Is the resistance between “A” and ground OK?*	Inspect the wire harness. (Faulty B/Y wire)	Replace the rear wheel speed sensor.

Step	Action	Yes	No
3	1) Measure the resistance between “18” (W/Y) and ground at the ABS control unit coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“18” – Ground)** **∞ Ω (Infinity)**  I905H1450079-01 *Is the resistance between “18” and ground OK?*	Go to Step 5.	Go to Step 4.
4	1) Measure the resistance between “B” (Bl) and ground at the rear wheel speed sensor coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Resistance (Ω)** **Normal value (“B” – Ground)** **∞ Ω (Infinity)**  I905H1450073-01 *Is the resistance between “B” and ground OK?*	Inspect the wire harness. (Faulty W/Y wire)	Replace the rear wheel speed sensor.

Step	Action	Yes	No
5	1) Check for continuity between “2” (B/Y) on the ABS control unit coupler and “C” (B/Y) on the rear wheel speed sensor coupler. **Special tool** **(A): 09900–25008 (Multi circuit tester set)** **(B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Continuity test (•)))** **Normal value (“2” – “C”)** **Continuity (•)))**  ABS control unit coupler (Harness side) I905H1450046-02 *Is there continuity between “2” and “C”?*	Go to Step 6.	Inspect the wire harness. (Faulty B/Y wire)
6	1) Check the continuity between “18” (W/Y) on the ABS control unit coupler and “D” (W/Y) on the rear wheel speed sensor coupler. **Special tool** **(A): 09900–25008 (Multi circuit tester set)** **(B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Continuity test (•)))** **Normal value (“18” – “D”)** **Continuity (•)))**  ABS control unit coupler (Harness side) I905H1450047-02 *Is the resistance between “18” and “D”?*	Go to Step 7.	Inspect the wire harness. (Faulty W/Y wire)

Step	Action	Yes	No
7	1) Connect the rear wheel speed sensor coupler. 2) Connect three 1.5 V dry cells “a” in series as shown and make sure that their total voltage is more than 4.5 V. Measure the current between (+) dry cell terminal and “2” (B/Y) on the ABS control unit coupler. **⚠ CAUTION** **Dry cells connection in reverse polarity is strictly prohibited. Such a wrong connection will damage the wheel speed sensor when reverse power is applied.** **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **TOOL (B): 09900–25009 (Needle-point probe set)** **Tester knob indication** **Current (⎓ , 20 mA)** **Normal value** **5 – 17 mA** ABS control unit coupler (Harness side)  I905H1450080-01 *Is the current OK?*	Replace the ABS control unit/HU.	Replace the rear wheel speed sensor.

DTC “46” (C1646): Wheel Speed Sensor Circuit Short (R) (AN400A/ZAK9)

B905H14504014

Possible Cause
• Poor contact in the rear wheel speed sensor coupler
• Faulty rear wheel speed sensor, etc.

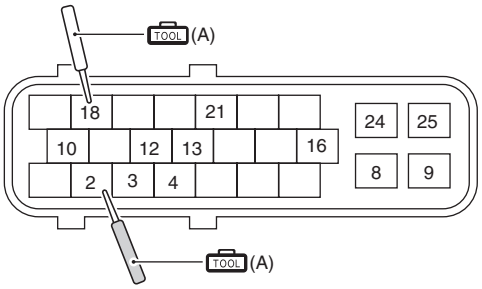
Wiring Diagram

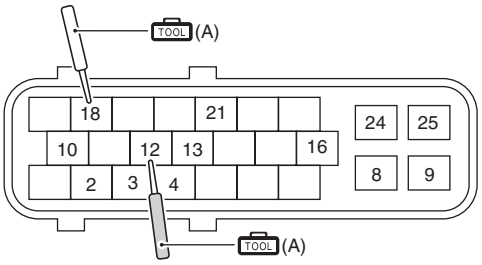
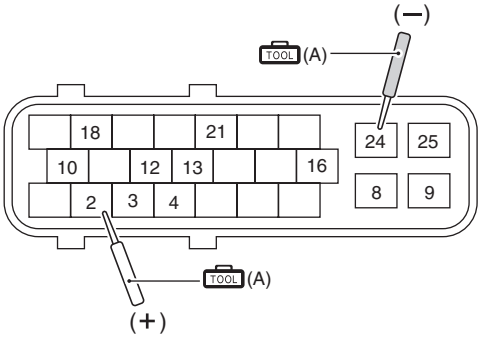
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 3) Check the ABS control unit coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 4) Check for continuity between “2” (B/Y) and “18” (W/Y) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Continuity (•)))** **ABS control unit coupler (Harness side)**  I718H1450093-02 *Is there continuity between “2” and “18”?*	• Inspect the wire harness. (Faulty sensor wire) • Faulty rear wheel speed sensor	Go to Step 2.

Step	Action	Yes	No
2	1) Check for continuity between “12” (B/R) and “18” (W/Y) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Continuity (•)))** **ABS control unit coupler (Harness side)**  I718H1450094-03 *Is there continuity between “12” and “18”?*	• Inspect the wire harness. (Faulty sensor wire) • Faulty wheel speed sensor	Go to Step 3.
3	1) Turn the ignition switch ON with the ABS control unit coupler disconnected, measure the voltage between “2” (B/Y) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value (“2” – “24”)** **0 V** **ABS control unit coupler (Harness side)**  I718H1450095-02 *Is the voltage between “2” and “24” 0 V?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty sensor signal or power supply wire)

DTC “47” (C1647): Supply Voltage (Increased) (AN400A/ZAK9)

B905H14504015

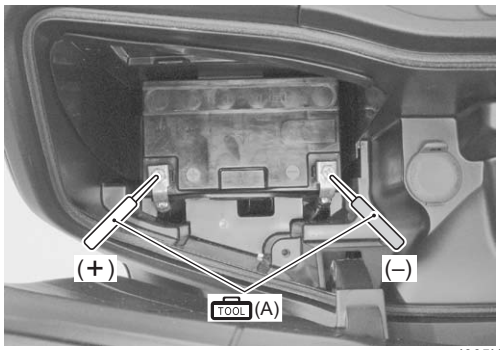
Possible Cause
• Faulty regulator/rectifier
• Faulty ABS control unit
• Faulty wire harness, etc.

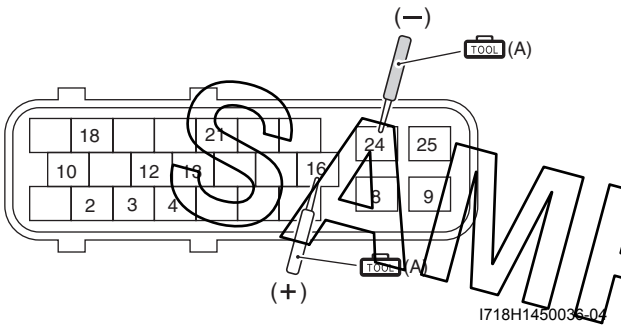
Wiring Diagram
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Open the front box and remove the battery cover. Refer to “Battery Removal and Installation” in Section 1J in related manual. 3) Measure the voltage between the (+) and (–) battery terminals using the multi-circuit tester. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Battery voltage** **12.0 V and more**  I905H1450048-01 *Is the voltage over 12 V?*	Go to Step 2.	Charge or replace the battery.
2	1) Start the engine at 5 000 r/min with the dimmer switch set to HI. 2) Measure the voltage between the (+) and (–) battery terminals. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Regulated voltage** **14.0 – 15.5 V at 5 000 r/min** *Is the voltage 14.0 – 15.5 V?*	Go to Step 3.	Inspect the regulator/rectifier. Refer to “Regulator/Rectifier Inspection” in Section 1J in related manual.

Step	Action	Yes	No
3	1) Turn the ignition switch OFF. 2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 3) Install the combination meter. 4) Check the ABS control unit coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 5) Start the engine at 5 000 r/min with the dimmer switch set to HI. 6) Measure the voltage between “16” (O/Y) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)**  *Is the voltage same as Step 2?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty ignition or ground wire)

DTC “48” (C1648): Supply Voltage (Decreased) (AN400A/ZAK9)

B905H14504016

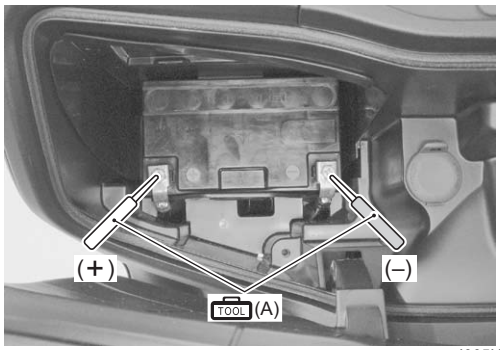
Possible Cause
• Faulty generator or regulator/rectifier
• Faulty ABS control unit
• Faulty wire harness, etc.

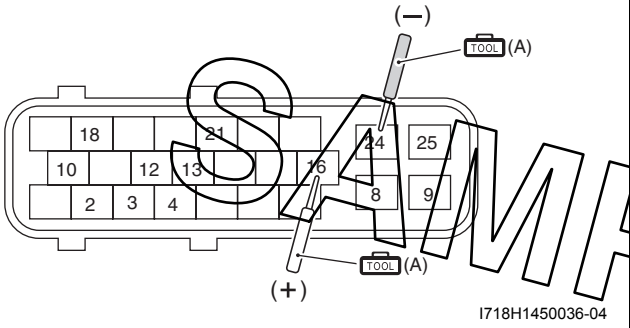
Wiring Diagram
Refer to “ABS Unit Diagram (AN400A/ZAK9)” (Page 4E-8).

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Open the front box and remove the battery cover. Refer to “Battery Removal and Installation” in Section 1J in related manual. 3) Measure the voltage between the (+) and (–) battery terminals using the multi-circuit tester. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Battery voltage** **12.0 V and more**  I905H1450048-01 *Is the voltage over 12 V?*	Go to Step 2.	Charge or replace the battery.
2	1) Start the engine at 5 000 r/min with the dimmer switch set to HI. 2) Measure the voltage between the (+) and (–) battery terminals. **Special tool** **TOOL : 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Regulated voltage** **14.0 – 15.5 V at 5 000 r/min** *Is the voltage 14.0 – 15.5 V?*	Go to Step 3.	Inspect the generator and regulator/rectifier. Refer to “Generator No-load Performance Inspection” in Section 1J in related manual and “Regulator/Rectifier Inspection” in Section 1J in related manual.

Step	Action	Yes	No
3	1) Turn the ignition switch OFF. 2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 3) Install the combination meter. 4) Check the ABS control unit coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 5) Start the engine at 5 000 r/min with the dimmer switch set to HI. 6) Measure the voltage between “16” (O/Y) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **ABS control unit coupler (Harness side)**  I718H1450036-04 *Is the voltage same as Step 2?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty ignition or ground wire)

DTC “55” (C1655): ABS Control Unit Malfunction (AN400A/ZAK9)

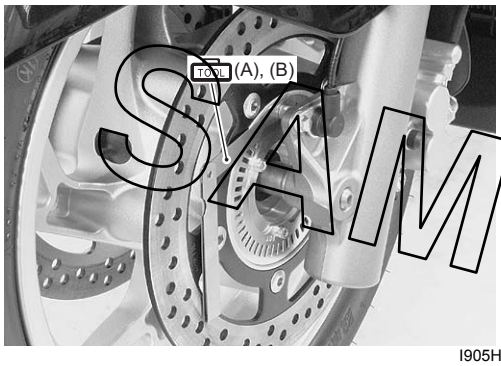
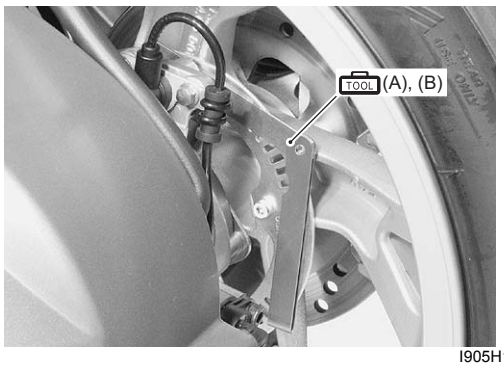
B905H14504017

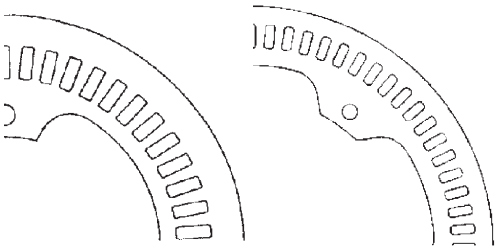
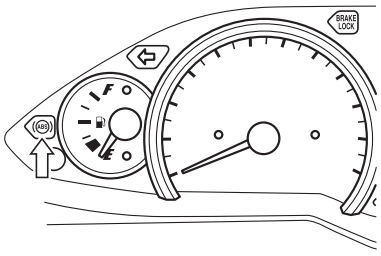
Possible Cause
Faulty ABS control unit

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Inspect the clearances of the front and rear wheel speed sensor – sensor rotor using the thickness gauge. **Special tool** **TOOL (A): 09900–20803 (Thickness gauge)** **TOOL (B): 09900–20806 (Thickness gauge)** **Wheel speed sensor – Sensor rotor clearance** **Front: 0.36 – 1.62 mm (0.014 – 0.064 in)** **Rear: 0.16 – 1.62 mm (0.006 – 0.064 in)** **Front**  I905H1240005-02 **Rear**  I905H1240009-02 *Are the clearances OK?*	Go to Step 2.	Adjust the clearance.

Step	Action	Yes	No
2	1) Inspect both of the wheel speed sensor rotors for damage and check that no foreign objects are caught in the rotor openings.  I905H1450049-01 *Are the rotors OK?*	Go to Step 3.	Clean or replace the rotor.
3	1) Check that the front and rear wheel speed sensors are mounted securely.  I905H1450050-01 *Are the sensors mounted securely?*	Go to Step 4.	Tighten the mounting bolts or replace the bracket if necessary.
4	1) Delete DTCs and repeat the code output procedure. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25) and “DTC (Diagnostic Trouble Code) Output (AN400A/ZAK9)” (Page 4E-22).  I905H1450005-01 *Is the DTC “55” (C1655) output again?*	Replace the ABS control unit/HU.	Intermittent trouble.

DTC “61” (C1661): ABS Solenoid Malfunction (AN400A/ZAK9)

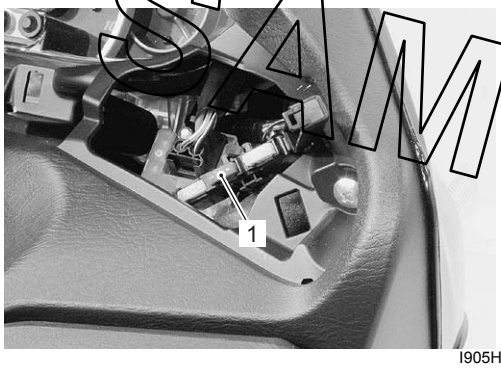
B905H14504018

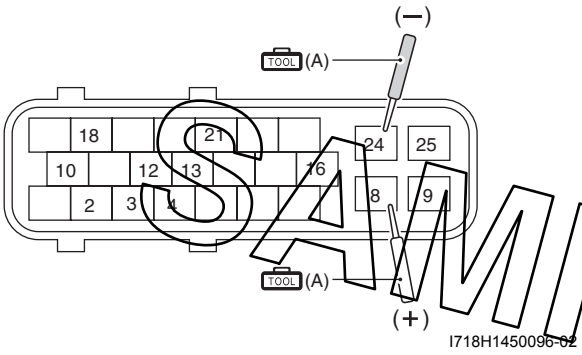
Possible Cause
Faulty solenoid valve or relay

Troubleshooting

NOTE

After repairing the trouble, clear the DTC using SDS tool. Refer to “DTC (Diagnostic Trouble Code) Deleting (AN400A/ZAK9)” (Page 4E-25).

Step	Action	Yes	No
1	1) Turn the ignition switch OFF. 2) Remove the upper meter panel. Refer to “Upper Meter Panel Removal and Installation” in Section 9D in related manual. 3) Inspect the ABS valve fuse (1). **⚠ CAUTION** **If a fuse is blown, find the cause of the problem and correct it before replacing the fuse.** **ABS valve fuse** **15 A**  I905H1450051-01 *Is the ABS valve fuse OK?*	Go to Step 2.	Replace the ABS valve fuse.

Step	Action	Yes	No
2	1) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual. 2) Check the ABS control unit coupler for loose or poor contacts. If OK, then disconnect the ABS control unit coupler. Refer to “ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)” (Page 4E-71). 3) Measure the voltage between “8” (R/Bl) and “24” (B/W) at the coupler. **Special tool** **TOOL (A): 09900–25008 (Multi circuit tester set)** **Tester knob indication** **Voltage (⎓)** **Normal value (“8” – “24”)** **Battery voltage (12.0 V and more)** **ABS control unit coupler (Harness side)**  *Is the voltage between “8” and “24” normal?*	Replace the ABS control unit/HU.	Inspect the wire harness. (Faulty solenoid or ground wire)

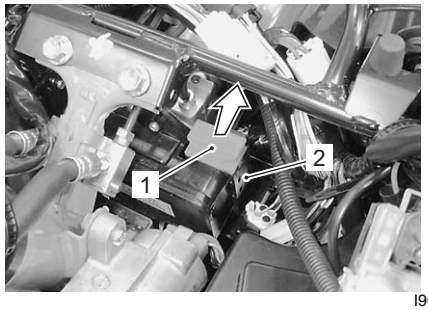
Repair Instructions

ABS Control Unit Coupler Disconnect and Connect (AN400A/ZAK9)

B905H14506003

Disconnect

1) Turn the ignition switch OFF.
2) Remove the meter panel. Refer to “Meter Panel Removal and Installation” in Section 9D in related manual.
3) Pull up the coupler lock (1) and disconnect the ABS control unit coupler (2).



I905H1450053-01

Connect

Connect the ABS control unit coupler in the reverse order of disconnect.

Front Wheel Speed Sensor Removal and Installation (AN400A/ZAK9)

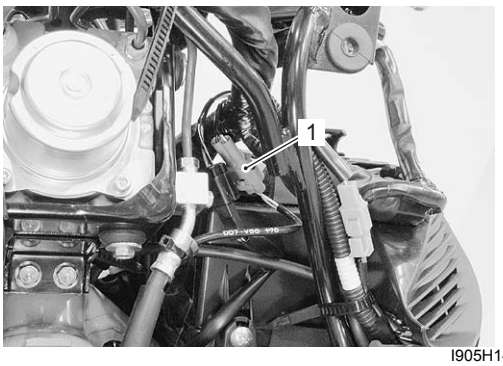
B905H14506004

⚠ CAUTION

- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **The wheel speed sensor cannot be disassembled.**

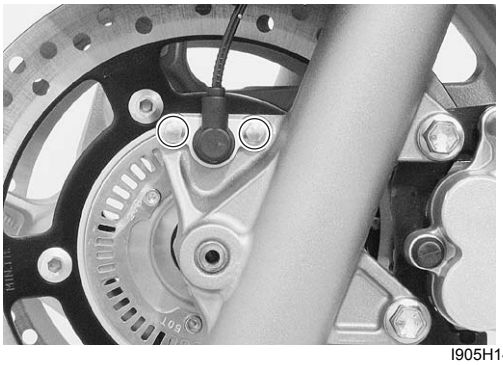
Removal

1) Turn the ignition switch OFF.
2) Remove the front leg shield. Refer to “Front Leg Shield Removal and Installation” in Section 9D in related manual.
3) Disconnect the front wheel speed sensor coupler (1).



I905H1450054-01

4) Remove the front wheel speed sensor mounting bolts.



I905H1450055-01

5) Remove the front wheel speed sensor as shown in the front wheel speed sensor routing diagram. Refer to “Front Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)” (Page 4E-9).

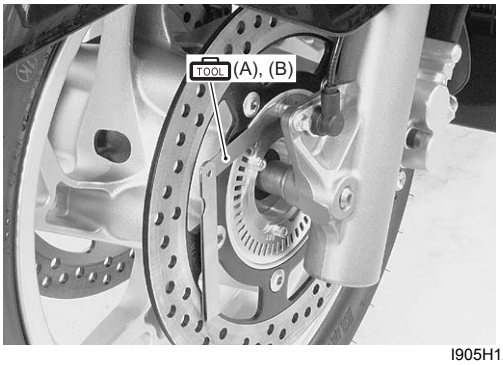
Installation

Refer to “Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)” (Page 4E-74).
Install the front wheel speed sensor in the reverse order of removal. Pay attention to the following points:

- Install the front wheel speed sensor as shown in the front wheel speed sensor routing diagram. Refer to “Front Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)” (Page 4E-9).
- Check the clearance between the front wheel speed sensor and sensor rotor using the thickness gauge.

Special tool
TOOL (A): 09900–20803 (Thickness gauge)
TOOL (B): 09900–20806 (Thickness gauge)

Wheel speed sensor – Sensor rotor clearance
0.36 – 1.62 mm (0.014 – 0.064 in)



I905H1240005-02

Rear Wheel Speed Sensor Removal and Installation (AN400A/ZAK9)

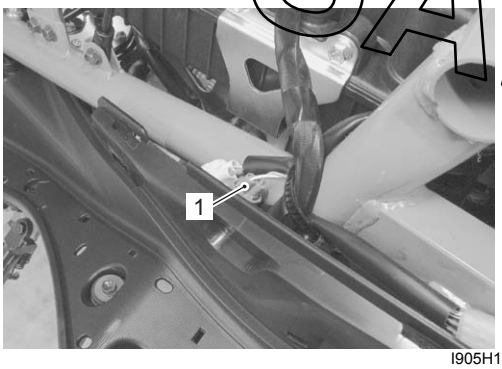
B905H14506005

⚠ CAUTION

- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **The wheel speed sensor cannot be disassembled.**

Removal

1) Turn the ignition switch OFF.
2) Remove the side leg shield. Refer to “Side Leg Shield Removal and Installation” in Section 9D in related manual.
3) Remove the belt cooling duct and outer clutch cover. Refer to “V-belt Type Continuously Variable Automatic Transmission Removal and Installation” in Section 5A in related manual and “Belt Cooling Duct Hose Removal and Installation (AN400/A/ZAK9)” in Section 5A (Page 5A-3).
4) Remove the frame cover. Refer to “Frame Cover Removal and Installation” in Section 9D in related manual.
5) Disconnect the rear wheel speed sensor coupler (1).

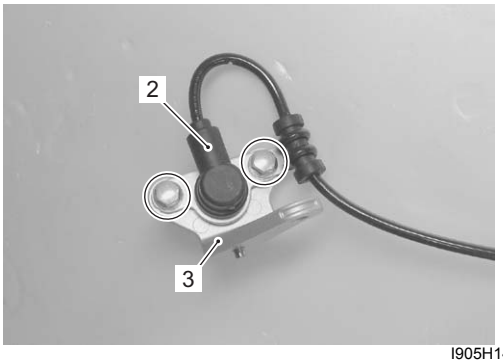


I905H1450056-01

6) Remove the rear wheel speed sensor bracket mounting bolt.

I905H1450081-01

7) Remove the rear wheel speed sensor as shown in the rear wheel speed sensor routing diagram. Refer to “Rear Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)” (Page 4E-10).
8) Remove the rear wheel speed sensor (2) from the bracket (3).



I905H1450057-01

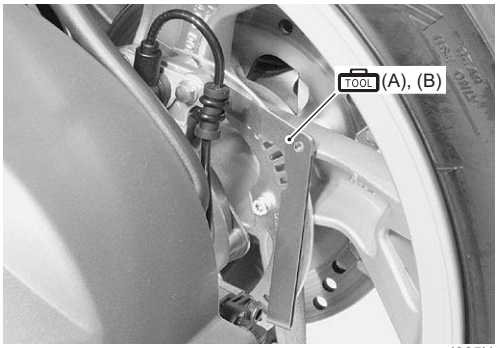
Installation

Refer to “Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)” (Page 4E-74).
Install the rear wheel speed sensor in the reverse order of removal. Pay attention to the following points:

- Install the rear wheel speed sensor as shown in the rear wheel speed sensor routing diagram. Refer to “Rear Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)” (Page 4E-10).
- Check the clearance between the rear wheel speed sensor and sensor rotor using the thickness gauge.

Special tool
TOOL (A): 09900–20803 (Thickness gauge)
TOOL (B): 09900–20806 (Thickness gauge)

Wheel speed sensor – Sensor rotor clearance
0.16 – 1.62 mm (0.006 – 0.064 in)



I905H1240009-02

Front Wheel Speed Sensor Rotor Removal and Installation (AN400A/ZAK9)

B905H14506006

⚠ CAUTION

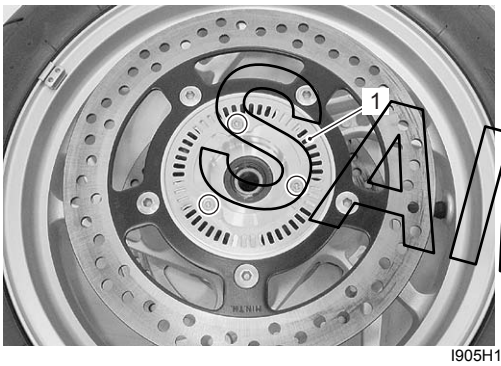
- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **Do not hit the front wheel speed sensor rotor when dismounting the front wheel.**

Removal

1) Remove the front wheel assembly. Refer to “Rear Wheel Assembly Removal and Installation (AN400A/ZAK9)” in Section 2D (Page 2D-6).
2) Remove the front wheel speed sensor rotor (1).

⚠ CAUTION

When replacing the tire, make sure not to damage the sensor rotor.



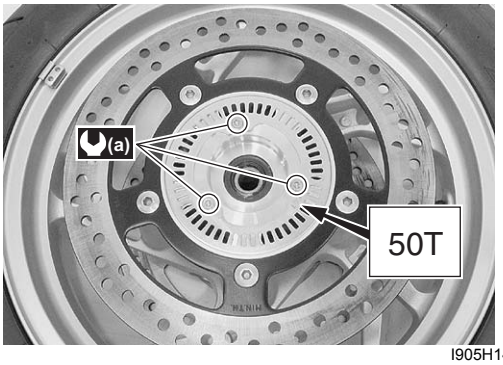
I905H1450058-01

Installation

Refer to “Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)” (Page 4E-74).
Install the front wheel speed sensor rotor in the reverse order of removal. Pay attention to the following points:

- Install the wheel speed sensor rotor as the letters “50T” face outside.

Tightening torque
Front wheel speed sensor rotor bolt (a): 6 N·m (0.6 kgf-m, 4.5 lbf-ft)

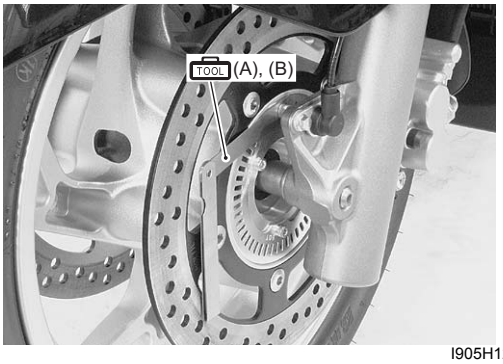


I905H1450059-02

- Install the front wheel assembly. Refer to “Front Wheel Assembly Removal and Installation (AN400A/ZAK9)” in Section 2D (Page 2D-3).
- Check the clearance between the front wheel speed sensor and sensor rotor using the thickness gauge.

Special tool
TOOL (A): 09900–20803 (Thickness gauge)
TOOL (B): 09900–20806 (Thickness gauge)

Wheel speed sensor – Sensor rotor clearance
0.36 – 1.62 mm (0.014 – 0.064 in)



I905H1240005-02

Rear Wheel Speed Sensor Rotor Removal and Installation (AN400A/ZAK9)

B905H14506007

⚠ CAUTION

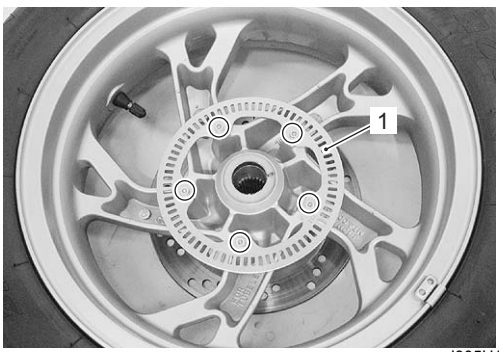
- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **Do not hit the rear wheel speed sensor rotor when dismounting the rear wheel.**

Removal

1) Remove the rear wheel assembly. Refer to “Rear Wheel Assembly Removal and Installation (AN400A/ZAK9)” in Section 2D (Page 2D-6).
2) Remove the rear wheel speed sensor rotor (1).

⚠ CAUTION

When replacing the tire, make sure not to damage the sensor rotor.



I905H1450060-01

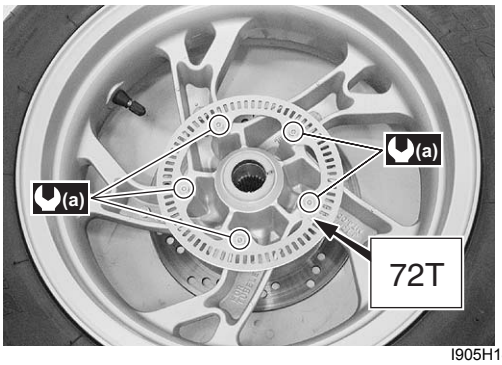
Installation

Refer to “Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)” (Page 4E-74).

Install the rear wheel speed sensor rotor in the reverse order of removal. Pay attention to the following points:

- Install the wheel speed sensor rotor as the letters “72T” face outside.

Tightening torque
Rear wheel speed sensor rotor bolt (a): 6 N·m (0.6 kgf-m, 4.5 lbf-ft)

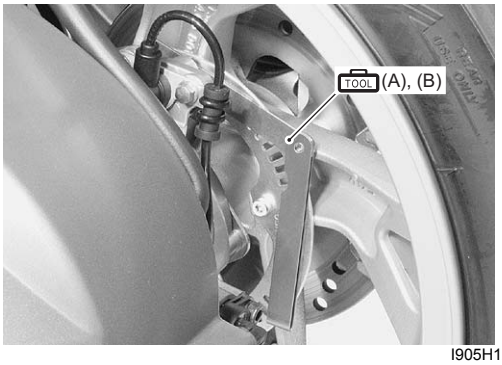


I905H1450061-02

- Install the rear wheel assembly. Refer to “Rear Wheel Assembly Removal and Installation (AN400A/ZAK9)” in Section 2D (Page 2D-6).
- Check the clearance between the rear wheel speed sensor and sensor rotor using the thickness gauge.

Special tool
(A): 09900–20803 (Thickness gauge)
(B): 09900–20806 (Thickness gauge)

Wheel speed sensor – Sensor rotor clearance
0.16 – 1.62 mm (0.006 – 0.064 in)



I905H1240009-02

Wheel Speed Sensor and Sensor Rotor Inspection (AN400A/ZAK9)

B905H14506008

Wheel Speed Sensor

1) Remove the wheel speed sensor. Refer to “Front Wheel Speed Sensor Removal and Installation (AN400A/ZAK9)” (Page 4E-71) and “Rear Wheel Speed Sensor Removal and Installation (AN400A/ZAK9)” (Page 4E-72).
2) Inspect the wheel speed sensor for damage. Clean the sensor if any metal particle or foreign material stuck on it.

I905H1450062-01

3) After finishing the speed sensor inspection, install the wheel speed sensor.

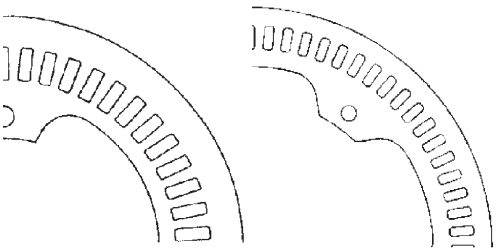
Wheel Speed Sensor Rotor

1) Raise the wheel off the ground and support the motorcycle with a jack or wooden block.

⚠ CAUTION

Make sure that the motorcycle is supported securely.

2) Check that no wheel speed sensor rotor teeth are broken and that no foreign objects are caught in the wheel speed sensor.



I905H1450049-01

ABS Control Unit/HU Removal and Installation (AN400A/ZAK9)

B905H14506009

Removal

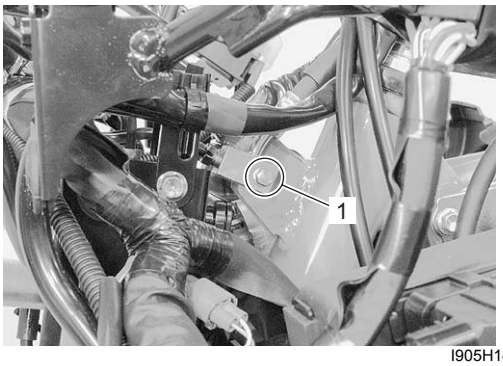
⚠ WARNING

When storing the brake fluid, seal the container completely and keep away from children.

⚠ CAUTION

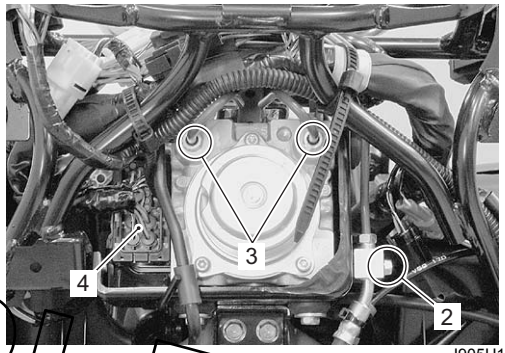
- **This brake system is filled with an ethylene glycol-based DOT 4 brake fluid. Do not mix different types of fluid such as silicone-based or petroleum-based.**
- **Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for long periods.**
- **Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc. and will damage then severely.**
- **The ABS is made up of many precision parts; never subject it to strong impacts or allow it to become dirty or dusty.**
- **The ABS control unit/HU cannot be disassembled.**

1) Turn the ignition switch OFF.
2) Remove the front leg shield. Refer to “Front Leg Shield Removal and Installation” in Section 9D in related manual.
3) Drain the brake fluid. Refer to “Brake Fluid Replacement” in Section 4A in related manual.
4) Remove the brake hose union mounting bolt (1).



I905H1450063-01

5) Remove the brake hose union mounting bolt (2).
6) Loosen the flare nuts (3) and disconnect the brake pipes.
7) Disconnect the ABS control unit coupler (4).

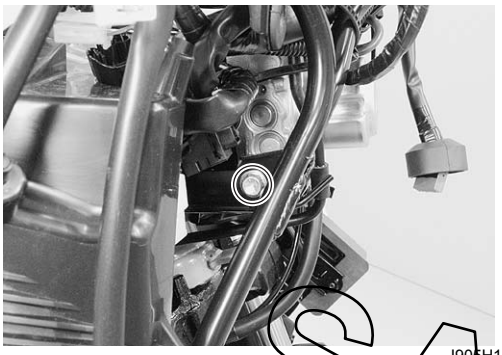


I905H1450064-02

I905H1450065-01

8) Remove the ABS control unit/HU assembly by removing the holder mounting bolts.

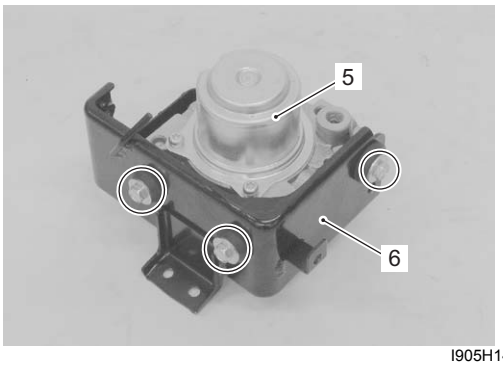
I905H1450066-01



I905H1450067-01

I905H1450068-01

9) Remove the ABS control unit/HU (5) from the holder (6).



I905H1450069-01

Installation

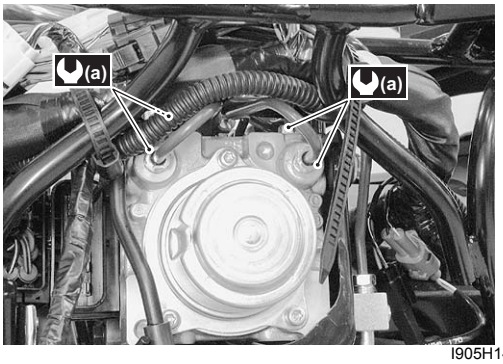
Installation is in the reverse order of removal. Pay attention to the following points:

⚠ CAUTION

- **Route the brake hoses and pipes correctly. Refer to "Front Brake Hose Routing Diagram (AN400A/ZAK9)" in Section 4A (Page 4A-1) or "Rear Brake Hose Routing Diagram (AN400A/ZAK9)" in Section 4A (Page 4A-2).**
- **Make sure to hold the brake pipe when tightening the flare nut, or it may be misaligned.**

- Tighten the brake pipe flare nuts to the specified torque.

Tightening torque
Brake pipe flare nut (a): 16 N·m (1.6 kgf-m, 11.5 lbf-ft)



I905H1450070-01

- Bleed air from the brake fluid circuit. Refer to "Air Bleeding from Brake Fluid Circuit" in Section 4A in related manual.

Specifications

Tightening Torque Specifications

B905H14507001

Fastening part	Tightening torque			Note
	N·m	kgf-m	lbf-ft	
Front wheel speed sensor rotor bolt	6	0.6	4.5	☞(Page 4E-73)
Rear wheel speed sensor rotor bolt	6	0.6	4.5	☞(Page 4E-74)
Brake pipe flare nut	16	1.6	11.5	☞(Page 4E-76)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

Special Tools and Equipment

Recommended Service Material

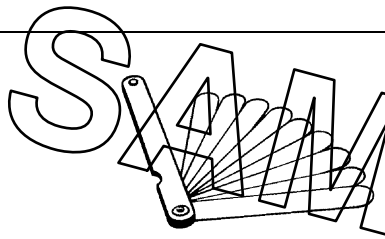
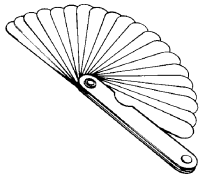
B905H14508001

NOTE

Required service material is also described in the following.
“Rear Wheel Speed Sensor Routing Diagram (AN400A/ZAK9)” (Page 4E-10)

Special Tool

B905H14508002

09900–20803 Thickness gauge ☞(Page 4E-15) / ☞(Page 4E-32) / ☞(Page 4E-34) / ☞(Page 4E-36) / ☞(Page 4E-38) / ☞(Page 4E-41) / ☞(Page 4E-44) / ☞(Page 4E-54) / ☞(Page 4E-67) / ☞(Page 4E-71) / ☞(Page 4E-72) / ☞(Page 4E-73) / ☞(Page 4E-74)		09900–20806 Thickness gauge ☞(Page 4E-15) / ☞(Page 4E-32) / ☞(Page 4E-34) / ☞(Page 4E-36) / ☞(Page 4E-38) / ☞(Page 4E-41) / ☞(Page 4E-44) / ☞(Page 4E-54) / ☞(Page 4E-67) / ☞(Page 4E-71) / ☞(Page 4E-72) / ☞(Page 4E-73) / ☞(Page 4E-74)	

09900–25008 Multi circuit tester set ☞(Page 4E-14) / ☞(Page 4E-15) / ☞(Page 4E-17) / ☞(Page 4E-18) / ☞(Page 4E-18) / ☞(Page 4E-19) / ☞(Page 4E-20) / ☞(Page 4E-21) / ☞(Page 4E-43) / ☞(Page 4E-47) / ☞(Page 4E-48) / ☞(Page 4E-48) / ☞(Page 4E-49) / ☞(Page 4E-49) / ☞(Page 4E-50) / ☞(Page 4E-51) / ☞(Page 4E-52) / ☞(Page 4E-53) / ☞(Page 4E-53) / ☞(Page 4E-57) / ☞(Page 4E-57) / ☞(Page 4E-58) / ☞(Page 4E-58) / ☞(Page 4E-59) / ☞(Page 4E-59) / ☞(Page 4E-60) / ☞(Page 4E-61) / ☞(Page 4E-62) / ☞(Page 4E-62) / ☞(Page 4E-63) / ☞(Page 4E-63) / ☞(Page 4E-64) / ☞(Page 4E-65) / ☞(Page 4E-65) / ☞(Page 4E-66) / ☞(Page 4E-70)	09900–25009 Needle-point probe set ☞(Page 4E-47) / ☞(Page 4E-48) / ☞(Page 4E-49) / ☞(Page 4E-50) / ☞(Page 4E-51) / ☞(Page 4E-57) / ☞(Page 4E-58) / ☞(Page 4E-59) / ☞(Page 4E-59) / ☞(Page 4E-60)
09904–41010 SUZUKI Diagnostic system set ☞(Page 4E-24) / ☞(Page 4E-26) / ☞(Page 4E-27) / ☞(Page 4E-28)	09930–82710 Mode select switch ☞(Page 4E-5) / ☞(Page 4E-21) / ☞(Page 4E-22) / ☞(Page 4E-25)
99565–01010–020 CD-ROM Ver.20 ☞(Page 4E-24) / ☞(Page 4E-26) / ☞(Page 4E-27) / ☞(Page 4E-28)	

Section 5

Transmission / Transaxle

CONTENTS

NOTE

For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Automatic Transmission

Repair Instructions

Outer Clutch Cover Cushion Construction (AN400/A/ZAK9)

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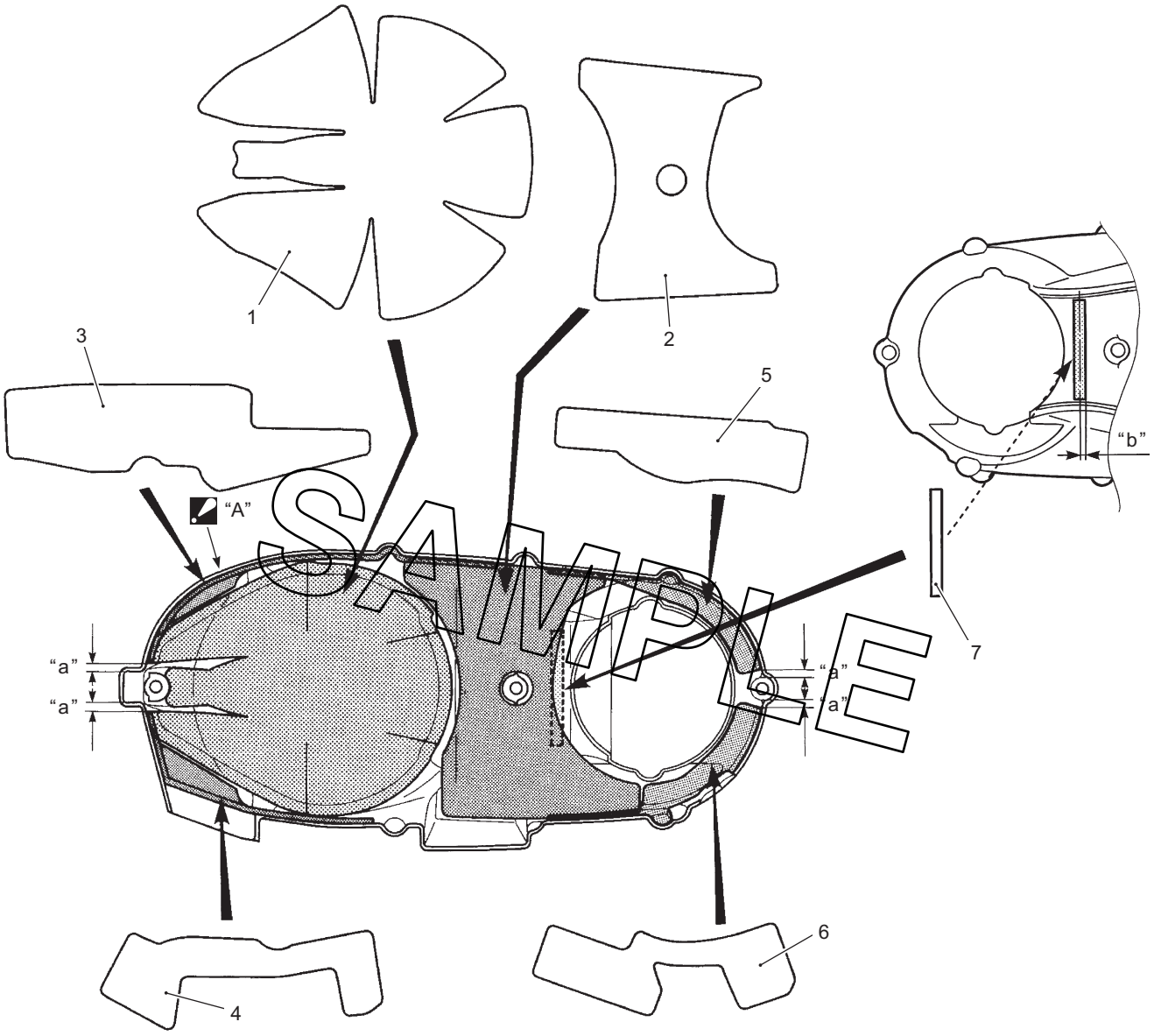
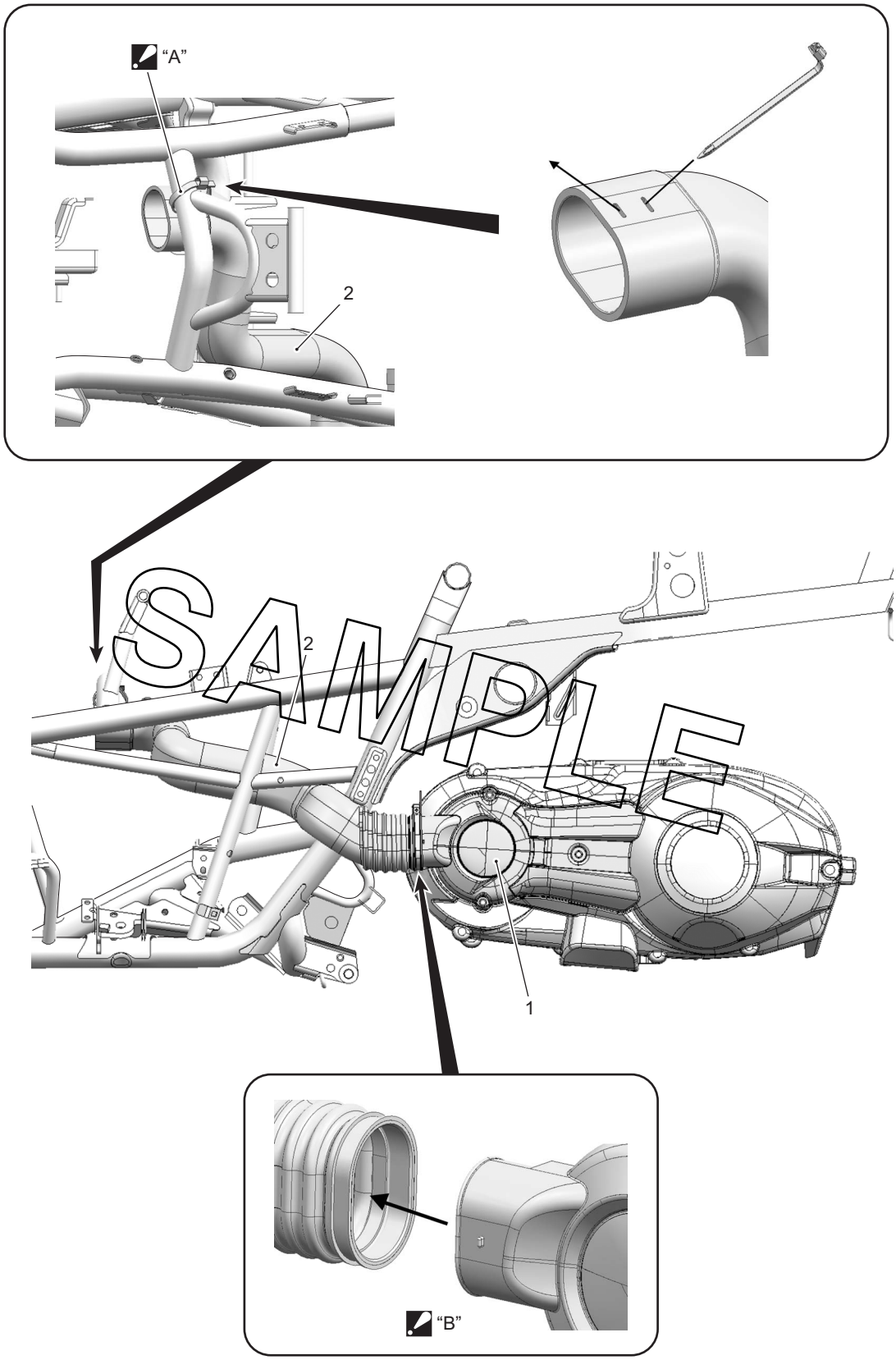


I905H1510001-01

1. Clutch outer cover cushion No. 1	6. Clutch outer cover cushion No. 6
2. Clutch outer cover cushion No. 2	7. Belt cooling duct cushion No. 1
3. Clutch outer cover cushion No. 3	"A": Stick top of cushion 0 – 5 mm (0 – 0.2 in) inside of the clutch outer cover.
4. Clutch outer cover cushion No. 4	"a": 5 – 10 mm (0.2 – 0.4 in)
5. Clutch outer cover cushion No. 5	"b": 4 – 6 mm (0.16 – 0.24 in)

Belt Cooling Duct Hose Construction (AN400/A/ZAK9)

B905H15106017



I905H1510003-03

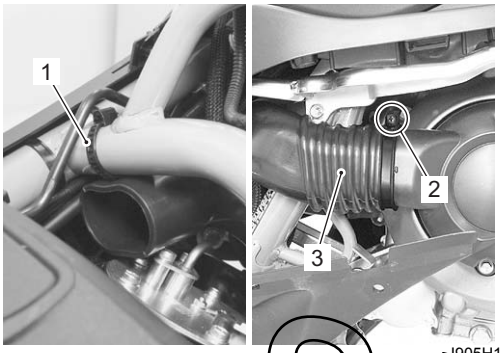
1. Belt cooling duct	"A": Clamp the belt cooling duct hose at this position.
2. Belt cooling duct hose	"B": Mach the groove part of belt cooling duct hose to the edge of belt cooling duct.

Belt Cooling Duct Hose Removal and Installation (AN400/A/ZAK9)

B905H15106018

Removal

1) Remove the front frame cover. Refer to “Front Frame Cover Removal and Installation” in Section 9D in related manual.
2) Remove the left slide leg shield. Refer to “Side Leg Shield Removal and Installation” in Section 9D in related manual.
3) Remove the clamp (1).
4) Remove the belt cooling duct hose (3) by loosening the clamp screw (2).



I905H1510002-02

Installation

Install the belt cooling duct hose in the reverse order of removal. Pay attention to the following point:

- Install the belt cooling duct hose properly. Refer to “Belt Cooling Duct Hose Construction (AN400/A/ZAK9)” (Page 5A-2).
- Tighten the belt cooling duct hose clamp screw.

Tightening torque
Belt cooling duct hose clamp screw: 1.5 N·m (0.15 kgf-m, 1.0 lbf-ft)

Specifications

Service Data (AN400K9)

B905H15107003

Refer to “Service Data (AN400K9)” in Section 0C (Page 0C-1).

Service Data (AN400A/ZAK9)

B905H15107004

Refer to “Service Data (AN400A/ZAK9)” in Section 0C (Page 0C-2) and “Service Data (AN400K9)” in Section 0C (Page 0C-1).

Tightening Torque Specifications

B905H15107005

Fastening part	Tightening torque			Note
	N·m	kgf-m	lbf-ft	
Belt cooling duct hose clamp screw	1.5	0.15	1.0	☞(Page 5A-3)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

Section 6

Steering

CONTENTS

NOTE

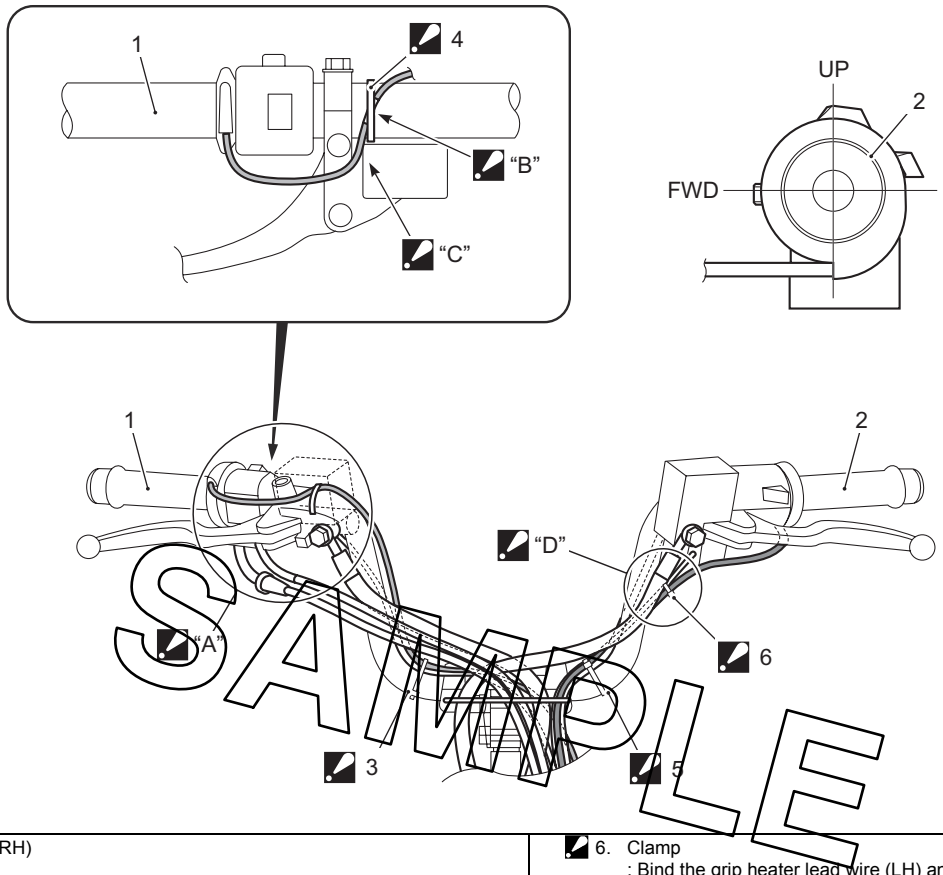
For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Steering / Handlebar

Schematic and Routing Diagram

Grip Heater Wiring Diagram (AN400ZAK9)

B905H16202001



I905H1620001-02

1. Grip heater (RH)	6. Clamp : Bind the grip heater lead wire (LH) and grip heater switch lead wire with the clamp. Cut off the excess end of clamp.
2. Grip heater (LH)	"A": Clamp the grip heater lead wire in a position so that it may not be pulled taut when the throttle grip is operated.
3. Clamp : Bind the grip heater lead wire (RH) and handlebar switch lead wire (RH) with the clamp. Cut off the excess end of clamp.	"B": Align the master cylinder holder's mating surface with the white taping point of lead wire.
4. Clamp : Bind the grip heater lead wire (RH) with the clamp. Cut off the excess end of clamp.	"C": Do not pinch the lead wire between the handlebar covers. Clamp the lead wire between the handlebar switch and brake lever holder.
5. Clamp : Bind the grip heater lead wire (LH), grip heater switch lead wire and handlebar switch lead wire (LH) with the clamp. Cut off the excess end of clamp.	"D": Secure the clamp so that the grip heater lead wire may not be tensioned or excessively loose.

Repair Instructions

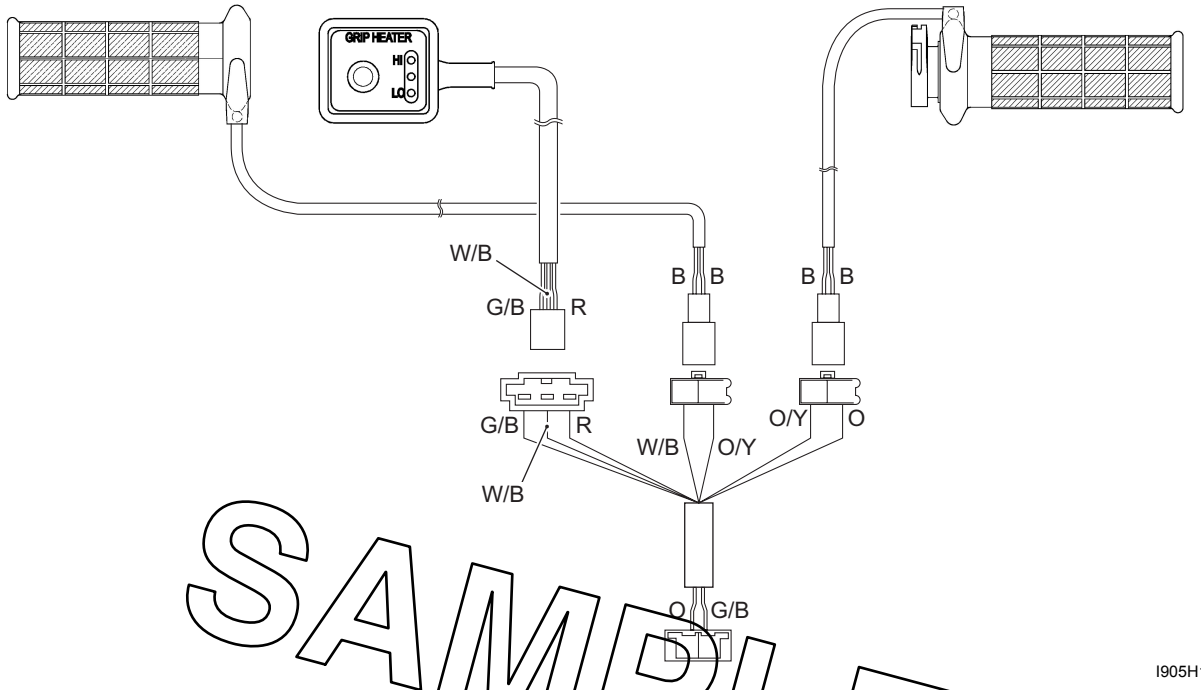
Grip Heater Removal and Installation (AN400ZAK9)

B905H16206014

Removal

Refer to “Grip Heater Removal and Installation (AN400ZK7)” in related manual.

Grip Heater Diagram



I905H1620002-01

Installation

Refer to “Grip Heater Removal and Installation (AN400ZAK9)” (Page 6B-2).

Grip Heater Inspection (AN400ZAK9)

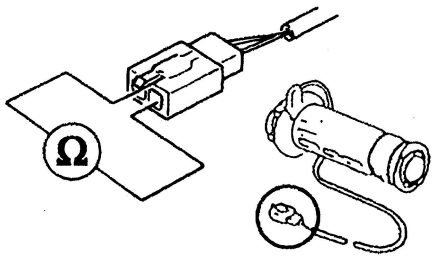
B905H16206015

1) Disconnect the grip heater lead wire couplers. Refer to “Grip Heater Removal and Installation (AN400ZK7)” in related manual.
2) Measure the grip heater resistance between the lead wires. If the resistance is not within the specified value, replace the grip heater with a new one.

Special tool
TOOL : 09900–25008 (Multi circuit tester set)

Tester knob indication
Resistance (Ω)

Grip heater resistance
LH: 4.50 – 5.50 Ω at 20°C (68°F) (B – B)
RH: 3.78 – 4.62 Ω at 20°C (68°F) (B – B)

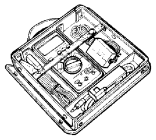


I905H1620003-01

Special Tools and Equipment

Special Tool

B905H16208002

09900–25008 Multi circuit tester set ☞(Page 6B-2)		

Section 9

Body and Accessories

CONTENTS

NOTE

For the items with asterisk (*) in the "CONTENTS" below, refer to the same section of the service manual mentioned in the "FOREWORD" of this manual.

Wiring Systems

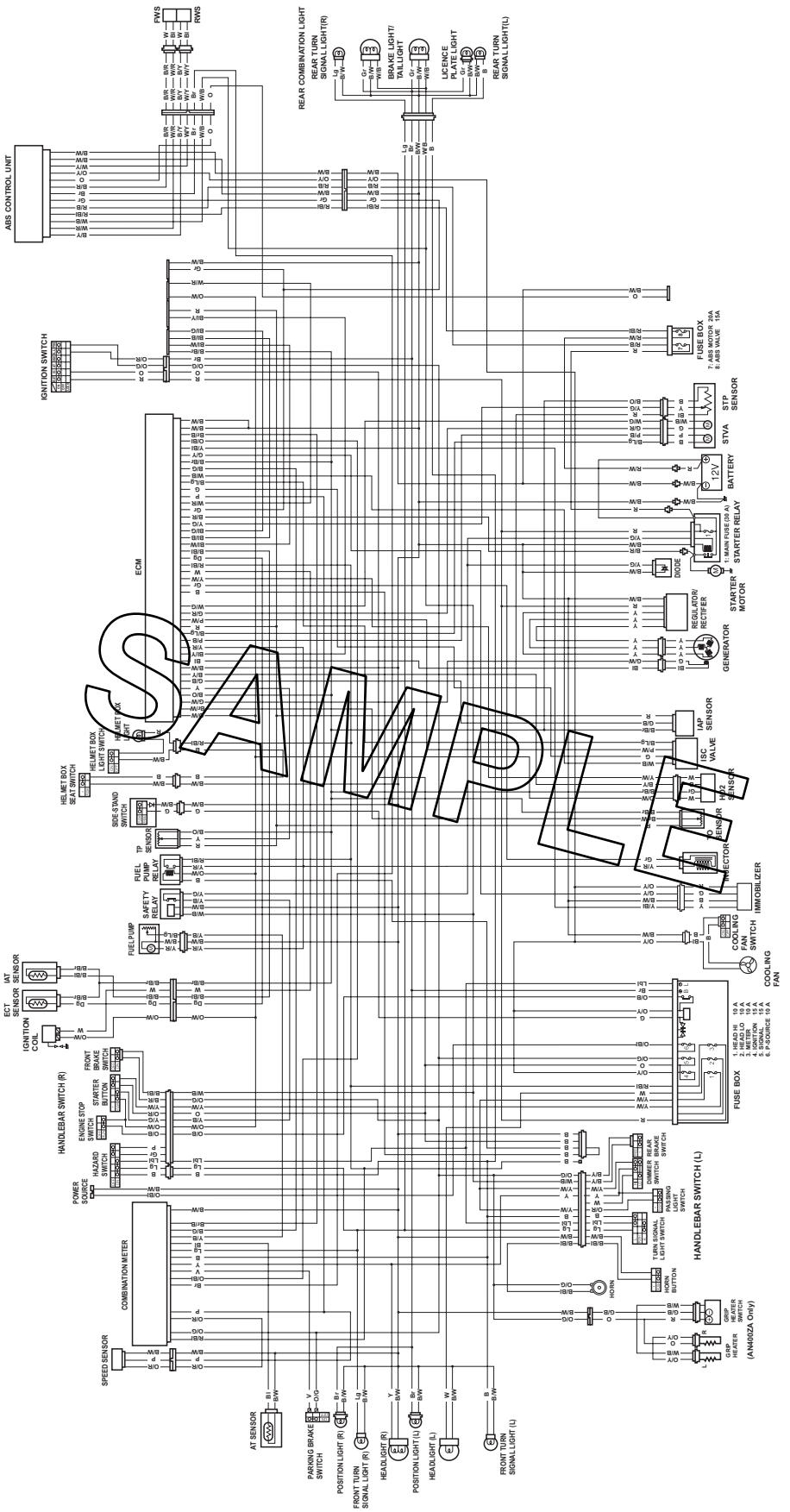
Schematic and Routing Diagram

Wiring Diagram (AN400A/ZAK9)

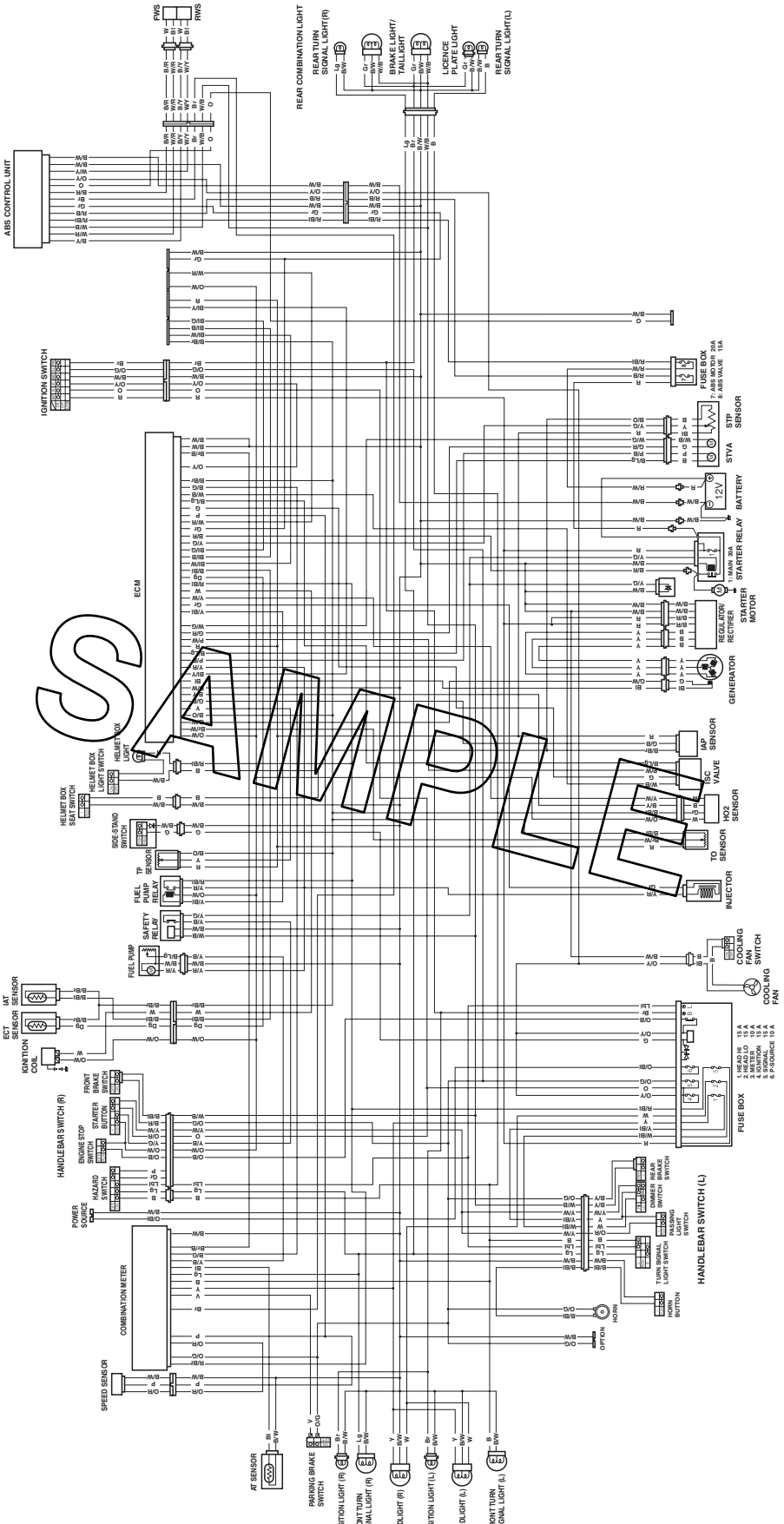
B905H19102004

Refer to “Wire Color Symbols” in Section 0A in related manual.

For E-02, 19, 24, 54



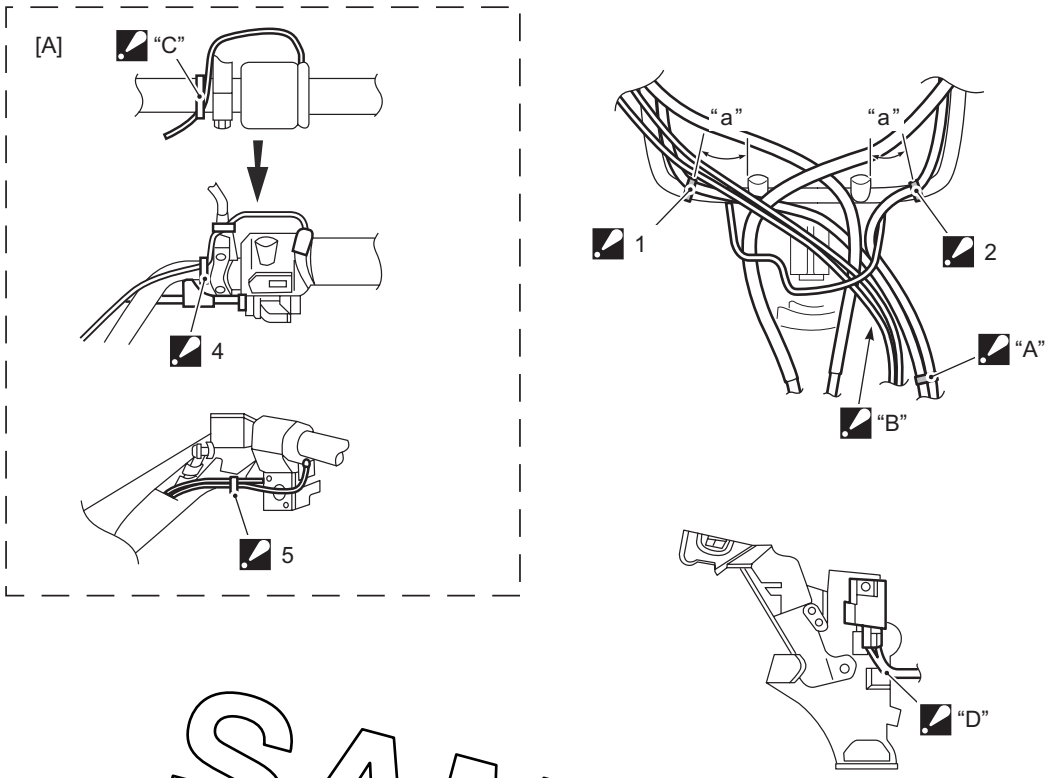
For E-03, 28, 33



I905H1910902-05

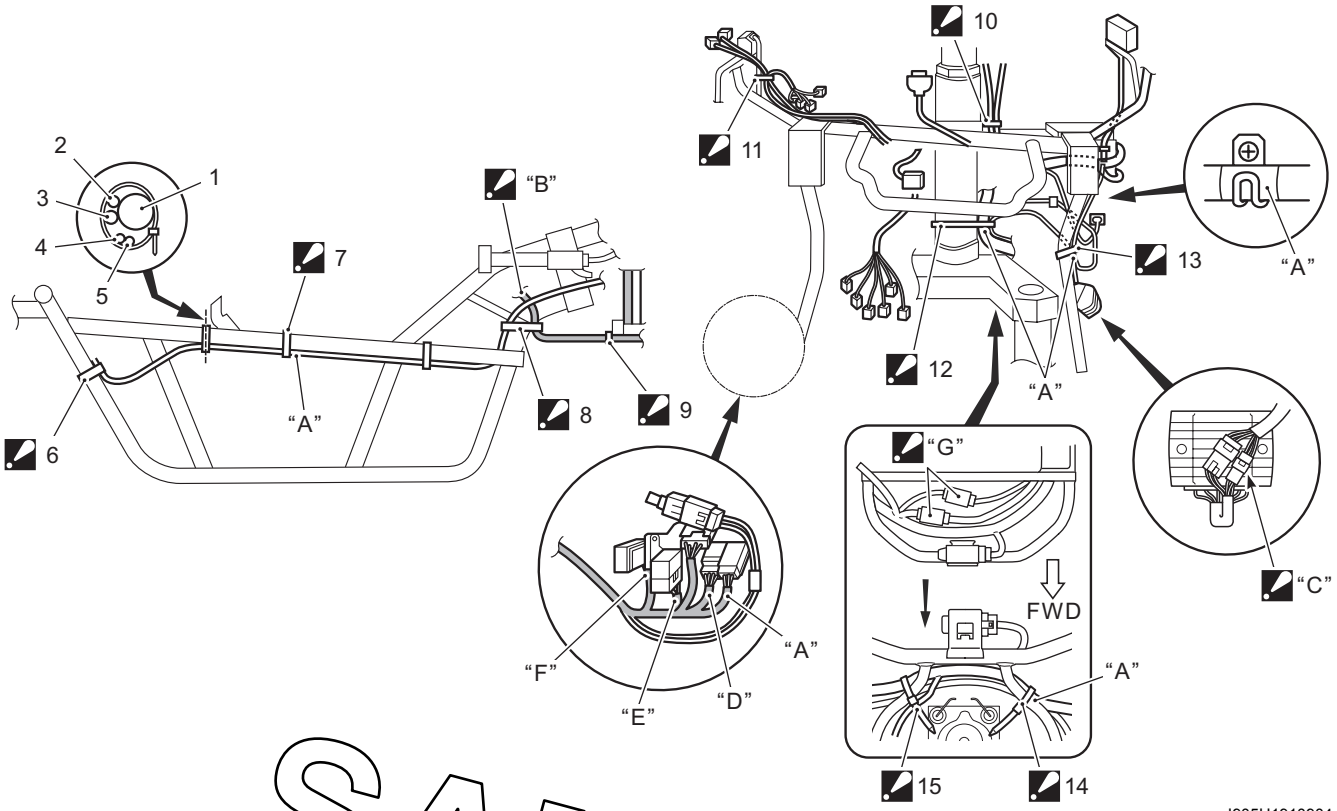
Wiring Routing Diagram (AN400A/ZAK9)

B905H19102005



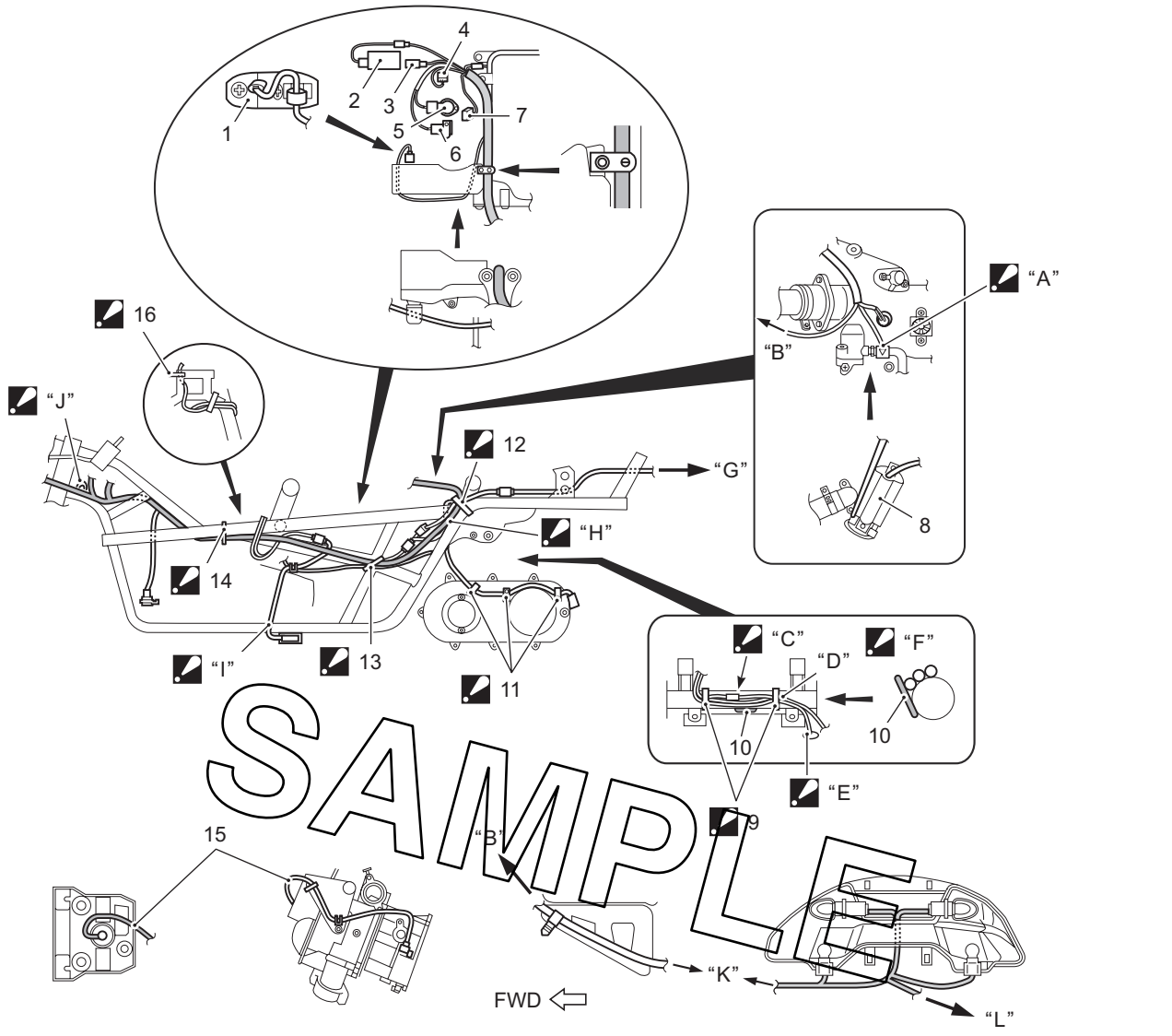
I905H1910903-06

1. Clamp : Bind the handlebar switch lead wire (RH) and grip heater lead wire (RH) [AN400ZA only] with the clamp. Cut off the excess end of clamp.	"B": Pass the handlebar switch lead wires (LH & RH) outside of the throttle cables.
2. Clamp : Bind the handlebar switch lead wire (LH), grip heater switch lead wire [AN400ZA only] and grip heater lead wire (LH) [AN400ZA only] with the clamp. Cut off the excess end of clamp.	"C": Align the master cylinder holder's mating surface with the white taping point of lead wire.
3. Clamp : Bind the handlebar switch lead wires (LH & RH), brake hoses (Front & Rear), throttle cables (No. 1 & No. 2), grip heater lead wires (LH & RH) and grip heater switch lead wire with the clamp.	"D": Pass the parking brake switch lead wire over the cushion.
4. Clamp : Bind the grip heater lead wire (RH) with the clamp. Cut off the excess end of clamp.	[A]: AN400ZA
5. Clamp : Bind the grip heater lead wire (LH) and grip heater switch lead wire with the clamp. Cut off the excess end of clamp.	"a": 15 – 25 mm (0.6 – 1.0 in)
"A": Clamp the lead wires at red taping point.	



I905H1910904-03

1. Frame	12. Clamp : Bind the wiring harness and battery (–) lead wire with the clamp.
2. Parking brake cable	13. Clamp : Bind the regulator/rectifier lead wire and battery lead wires ((+) & (–)).
3. Starter motor lead wire	14. Clamp : Bind the wiring harness and battery (+) lead wire with the clamp.
4. Brake hose	15. Clamp : Bind the wiring harness, headlight branch wire and battery (+) lead wire with clamp.
5. Seat lock cable	"A": White tape
6. Clamp : Bind the brake hose, parking brake cable and starter motor lead wire with the clamp. Do not contact the tip of clamp with the air cleaner box. The tip of clamp should face outside of the motorcycle.	"B": Pass the wiring harness in front of the seat lock cable.
7. Clamp : Bind the starter motor lead wire and parking brake cable with the clamp.	"C": Do not pinch the lead wire and wiring harness between front leg shield and brace.
8. Clamp : Bind the starter motor lead wire and wiring harness with the clamp.	"D": Black tape
9. Clamp : Bind the wiring harness with the clamp.	"E": Blue tape
10. Clamp : Bind the handlebar switch lead wires (LH & RH), grip heater lead wires (LH & RH) [AN400ZA only] and grip heater switch lead wire [AN400ZA only] with the clamp.	"F": Green tape
11. Clamp : Bind the starter motor lead wire, battery (+) lead wire, wiring harness and dealer mode coupler lead wire with the clamp.	"G": Set the handlebar switch couplers (LH & RH) behind the main harness.



I905H1910905-03

1. IAT sensor	15. High-tension cord
2. STVA	16. Clamp : The tip of clamp should face right side of the motorcycle.
3. STP sensor	"A": Pass the ignition coil lead wire inside of the water by-pass hose.
4. TP sensor	"B": To IAT sensor
5. ISC valve	"C": Position the couplers at the center between the clamps.
6. IAP sensor	"D": White tape (Generator lead wire)
7. Fuel injector	"E": Do not make slacked part.
8. Ignition coil	"F": Pass the lead wires and wiring harness over the wiring harness stopper.
9. Clamp : Bind the generator lead wire and HO2 sensor lead wire with the clamp.	"G": To rear combination light
10. Wiring harness stopper	"H": Pass the wiring harness in front of the frame.
11. Clamp : Bind the speed sensor lead wire and rear wheel speed sensor lead wire with the clamp.	"I": Pass the lead wire outside of the hoses.
12. Clamp : Bind the wiring harness, speed sensor lead wire, generator lead wire and rear wheel speed sensor lead wire with the clamp.	"J": Pass the horn lead wire behind the bracket.
13. Clamp : Bind the wiring harness, battery (–) lead wire and side-stand switch lead wire with the clamp.	"K": To main harness
14. Clamp : Bind the throttle cables (No. 1 & No. 2), wiring harness and battery (–) lead wire with the clamp.	"L": To license light

Specifications

Service Data (AN400K9)

B905H1910S003

NOTE

The service data is the same as the K8-model.

Service Data (AN400A/ZAK9)

B905H1910S004

Refer to “Service Data (AN400A/ZAK9)” in Section 0C (Page 0C-2).

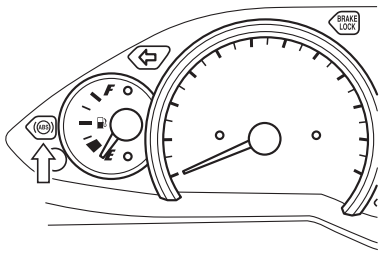
Combination Meter / Fuel Meter / Horn

Repair Instructions

Combination Meter (ABS Indicator Light) Inspection (AN400A/ZAK9)

B905H19306014

Check if the ABS indicator lights up when turning the ignition switch ON.
If the ABS indicator does not light up, replace the combination meter assembly with a new one after checking its wire harness/coupler.
Refer to “ABS Indicator Light Inspection (AN400A/ZAK9)” in Section 4E (Page 4E-16).



I905H1450074-01

Specifications

Service Data (AN400K9)

B905H19307002

NOTE

The service data is the same as the K8-model.

Service Data (AN400A/ZAK9)

B905H19307003

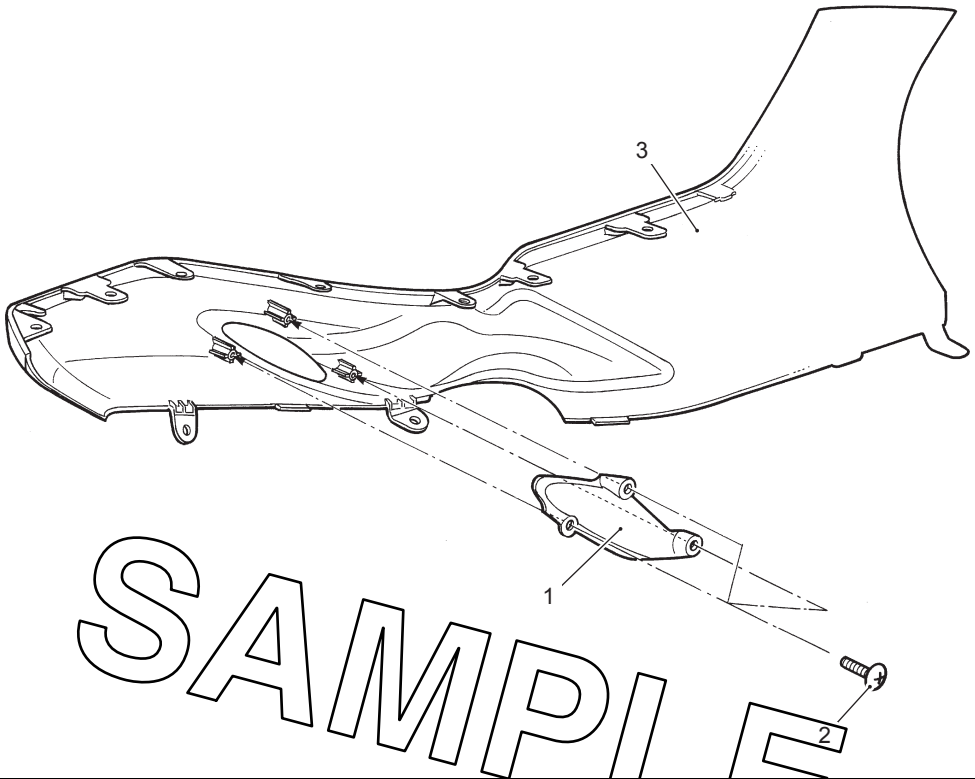
Refer to “Service Data (AN400A/ZAK9)” (Page 9C-1).

Exterior Parts

Repair Instructions

Side Leg Shield Cover (LH) Componets (AN400/Z/A/ZAK9)

B905H19406028



I905H1940001-01

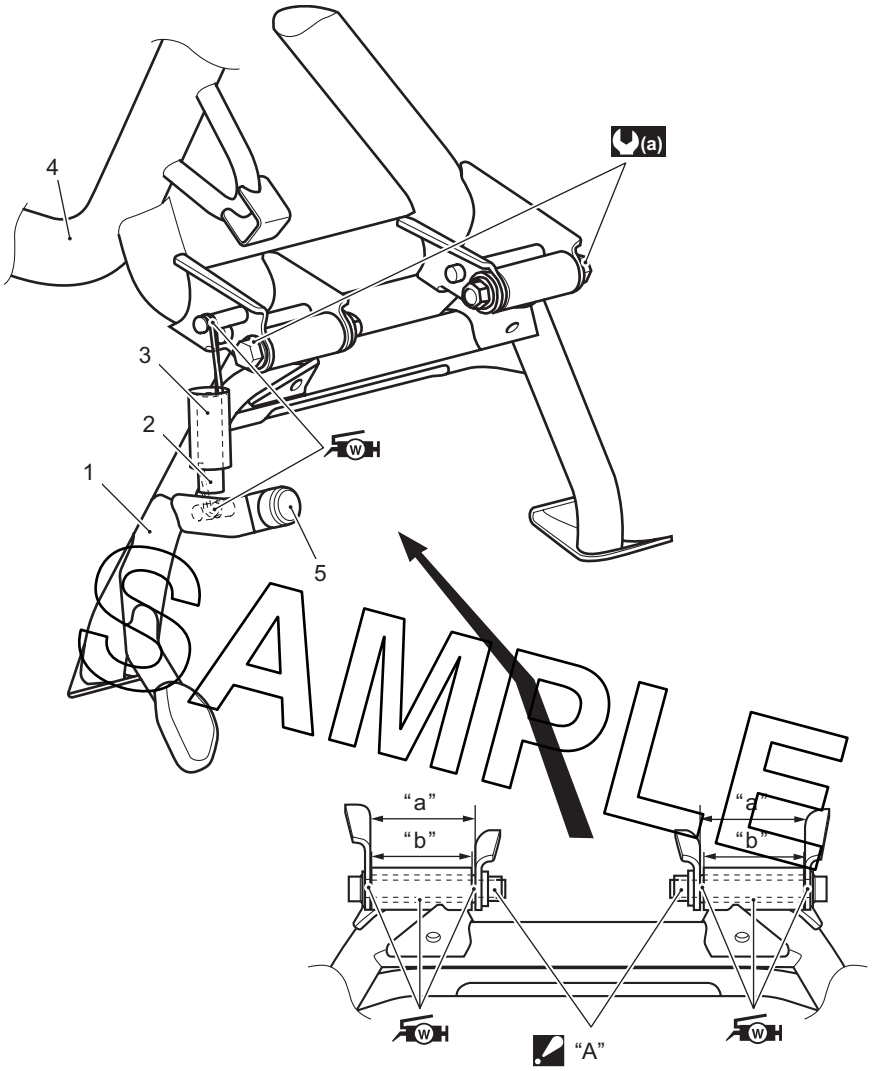
1. Side leg shield cover (LH)	2. Screw	3. Side leg shield cover (LH)

Body Structure

Repair Instructions

Center Stand Construction (AN400/Z/A/ZAK9)

B905H19506008



I905H1950001-01

1. Center stand	"A": Do not apply grease to the thread portion of the bolts.
2. Center stand inner spring	"a": 60 mm (2.4 in)
3. Center stand outer spring	"b": 57 mm (2.2 in)
4. Frame	(a): 50 Nm (5.0 kgf-m, 36.0 lbf-ft)
5. Cushion	: Apply grease to sliding surface.

Specifications

Tightening Torque Specifications

B905H19507001

NOTE

The specified tightening torque is described in the following.
“Center Stand Construction (AN400/Z/A/ZAK9)” (Page 9E-1)

Reference:
For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications” in Section 0C in related manual.

Special Tools and Equipment

Recommended Service Material

B905H19508001

NOTE

Required service material is also described in the following.
“Center Stand Construction (AN400/Z/A/ZAK9)” (Page 9E-1)

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