2008 NEW MODEL! Concours™ 14/14 ABS

Concours 14 ABS Model Shown

2008 Preliminary Edition

◆ *See the Kawasaki Product Sales Guide for more detailed features.*

The new Concours represents an entirely new genre of high-performance motorcycle: the Transcontinental Supersport. With breathtaking performance from its Ninja® ZX™-14-based engine, shaft drive, impeccable handling, slim riding position, electrically adjustable windscreen, standard hard luggage and a host of other features, the Concours 14 is Kawasaki's most impressive long-distance machine to date. There's even a model with ABS.

Because it's a Kawasaki, the Concours 14 is naturally designed to do much more than just take a rider from point A to point B. The new Concours is not only an awe-inspiring road burner, with its sporting heritage the Concours cuts up mountain roads like a true supersport bike. For those riders who cross countries and continents the way others cross the city, this machine offers more excitement than anything else in its category.

1,352cc Four-Cylinder, DOHC (KP) Engine With Variable Valve Timing (VVT)

- VVT helps boost low-end and mid-range torque for effortless acceleration from any engine speed while reducing emissions.
- Carefully planned engine design keeps it compact and narrow.
- Chrome composite plated(KP) aluminum cylinder bores are lightweight, durable, and quickly carry heat away from the combustion chamber and piston for supreme durability at high power outputs.

Gear-Driven Dual Engine Balancers(KP)

- Already in perfect primary balance, dual secondary balancers virtually eliminate unwanted vibrations for extremely smooth engine operation and rider comfort.

Ram Air Induction(KP)

- This system takes cooler, high-pressure air from in front of the fairing and guides it through the air cleaner and into the engine for maximum power output.

Digital Fuel Injection (KP)

- The throttle bodies are fitted with sub-throttle valves(KP) that are controlled by the ECU to provide precise response and make DFI

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performance smoother, with response similar to constant velocity carburetors.

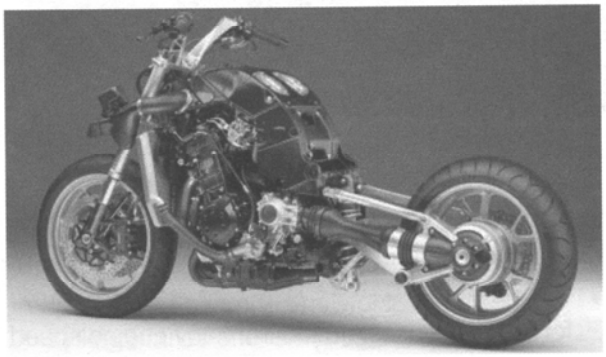
- 32-bit electronic control unit works with dual throttle valve system to further enhance throttle response and control.
- A digital computer feeds the engine exactly the amount of fuel it needs for cleaner emissions and maximum fuel economy.

Tetra-Lever Shaft Drive

- Special four-shaft design significantly reduces driveline lash and ensures smooth acceleration from the powerful engine.
- Smooth, direct power delivery provides the same natural ride quality as a chain.

Next-Generation Monocoque Aluminum Frame(KP)

- The frame is a hollow aluminum box that arches over the engine from the steering head to the swing arm pivot. It is narrow, strong, rigid, and very light.



- Engine is rigidly mounted to increase the monocoque's torsional rigidity. Plus using the engine as a stressed frame member decreases the frame's weight by approximately four pounds.
- The steering head and swing arm pivot areas are cast aluminum for superior strength and rigidity.

Inverted 43mm Cartridge Type Front Fork(KP)

- Damping rates offer stiff initial action to resist front-end dive when braking.
- Stepless damping adjustment improves suspension performance.

Bottom-Link Uni-Trak® Rear Suspension(KP)

- Linkage rates provide progressive suspension action.
- The bottom-link design concentrates the weight lower in the chassis for a lower center of gravity, which makes the bike more flickable.

Radial Mounted Petal Front Disc Brakes

- Radial mounted 4-piston front brake calipers. Instead of mounting the calipers with threaded tabs cast near the top of the caliper, the radial design utilizes integrated mounting points at both the top and bottom of the caliper, with the mounting bolts inserted through the rear of the caliper instead of the side/front. This makes the caliper more rigid, which improves brake feel over a wider range of operation.
- A separate brake pad is used for each piston. One large pad can deform with the heat generated by hard track style riding, resulting in a loss of brake feel at the lever. Individual pads provide increased cooling efficiency and can absorb more heat without deforming so that they maintain consistent brake feel lap after lap.
- Petal design brake discs provide better cooling and warp resistance.
- Radial-pump front brake master cylinder improves brake performance and lever feel.

ABS Model Available

- Anti-lock braking system (ABS) helps prevent the wheels from locking during hard, straight-up braking for enhanced control.

Electrically-Adjustable Windscreen

- More than a windscreen that simply blocks the wind, the Concours 14's windshield and front cowl aerodynamically curves the wind around the rider and passenger for reduced buffeting.

Standard Hard Luggage

- Slim, integrated design mounts the removable cases closer to the machine's centerline for excellent centralization of mass.

Smart Key Ignition System

- KI-PASS (Kawasaki Intelligent Proximity Activation Start System) provides keyless ignition when the KI-PASS fob is within approximately six feet of the ignition switch. Simply push and turn the ignition switch without inserting a key.
- The first smart key system in its class.

Accessory-Power Outlet

- Located in the front fairing for powering optional accessories such as grip heaters.

Tire Pressure Monitors

- Sensors at the front and rear wheels constantly monitor air pressure and display this information on the instrument panel, giving riders peace of mind during sustained Interstate highway riding or when carving up a mountain road.

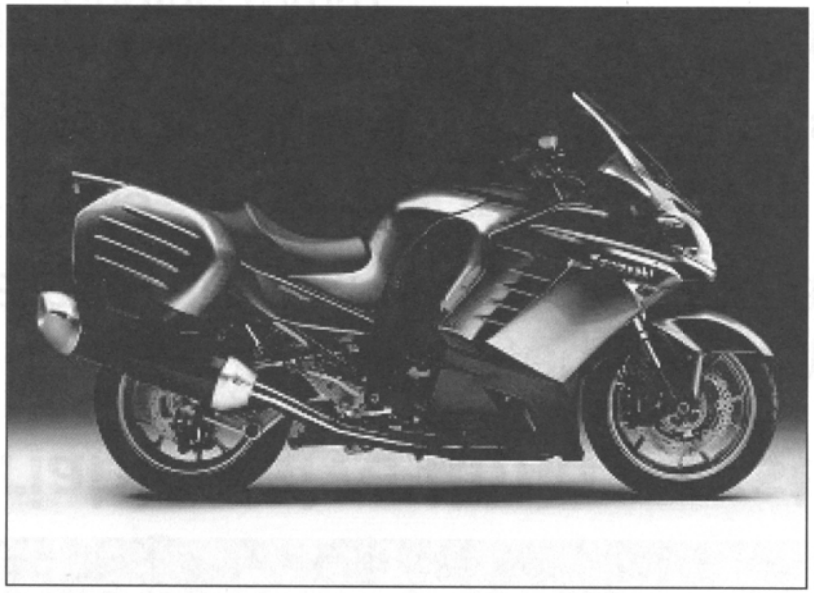
Full Instrumentation

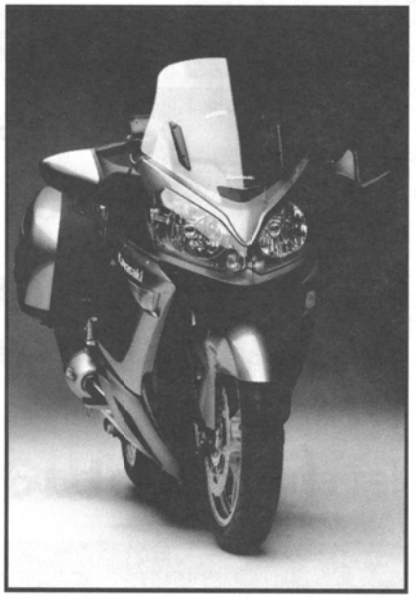
- Multi-function LCD digital display includes an odometer, two trip meters, gear position indicator and a clock.
- A CAN (Controller Area Network) interface between the meter uses fewer wires while allowing a greater volume of information, such as estimated fuel mileage, to be exchanged.

CONCOURS™ 14 / ABS ZG1400A/B

New Model Information

ZG1400A8F - ABS ZG1400B8F – Non ABS





CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **Kawasaki Diagnostic System 3 (KDS 3)**
  - Required for registration of the following parts to the Smart ECU
    - FI ECU
    - Steering lock ECU
    - FOB(s)
    - Tire pressure monitoring sensors (TPMS)

Engine

- **VVT**
  - The VVT actuator is operated by the lubrication system
    - Oil is taken directly from the oil pump to operate the VVT actuator
      - Pressure/volume to operate the actuator is much lower than the supplied oil pressure
        - » Excess pressure is relieved by the oil pressure relief valve
      - Because the operating pressure is low, normal wear to the lubrication system has no effect on VVT operation

CONCOURS™ 14 / ABS ZG1400A/B

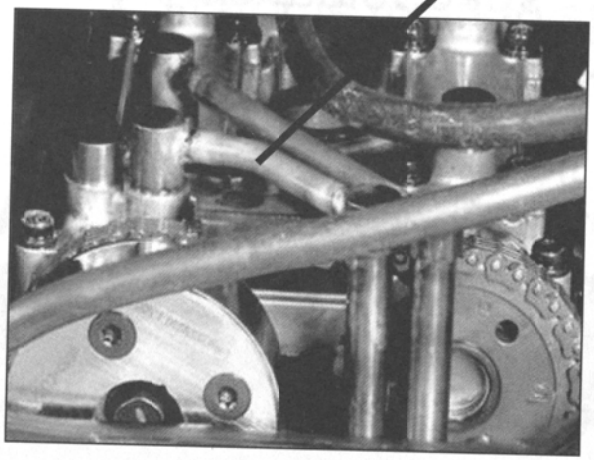
Engine

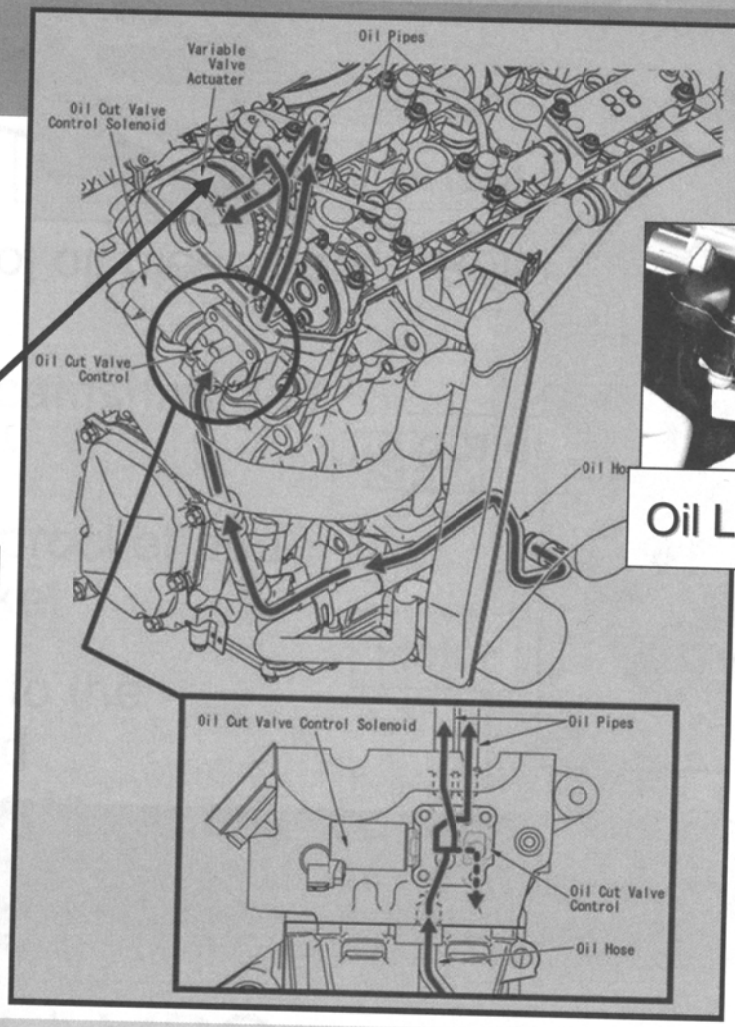
- **VVT**
  - Components
    - Oil pump: uses the engine's oil pump
    - External oil line: supplies oil to OCV from oil pump
    - Oil Control Valve (OCV): sets oil direction to actuator
    - Internal oil lines: supplies oil from OCV to actuator
    - VVT actuator: rotates camshaft
    - FI ECU: controls OCV operation
    - Cam Sensor: supplies cam angle information to ECU

CONCOURS™ 14 / ABS ZG1400A/B

Engine

- Oil pump to
- Oil Control Valve to
- Actuator to
- Oil return



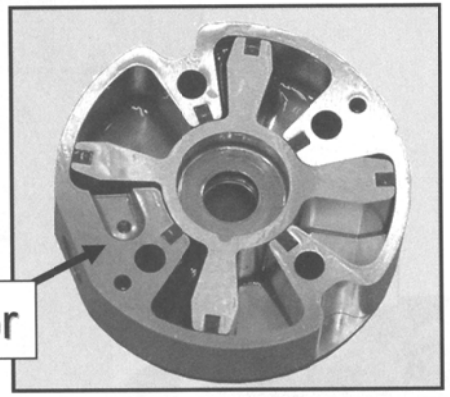


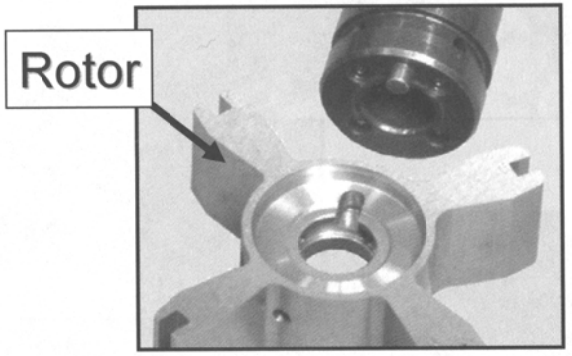
Oil Line Filter

CONCOURS™ 14 / ABS ZG1400A/B

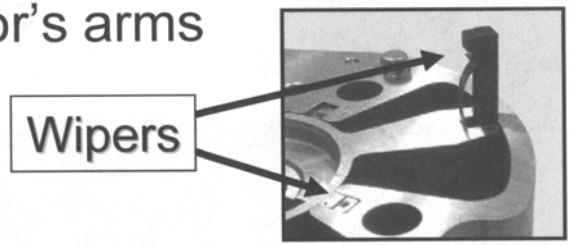
Engine

- **VVT**
  - Actuator
    - Two major parts
      - Stator and Rotor





    - Wipers help control oil bleed past the rotor's arms

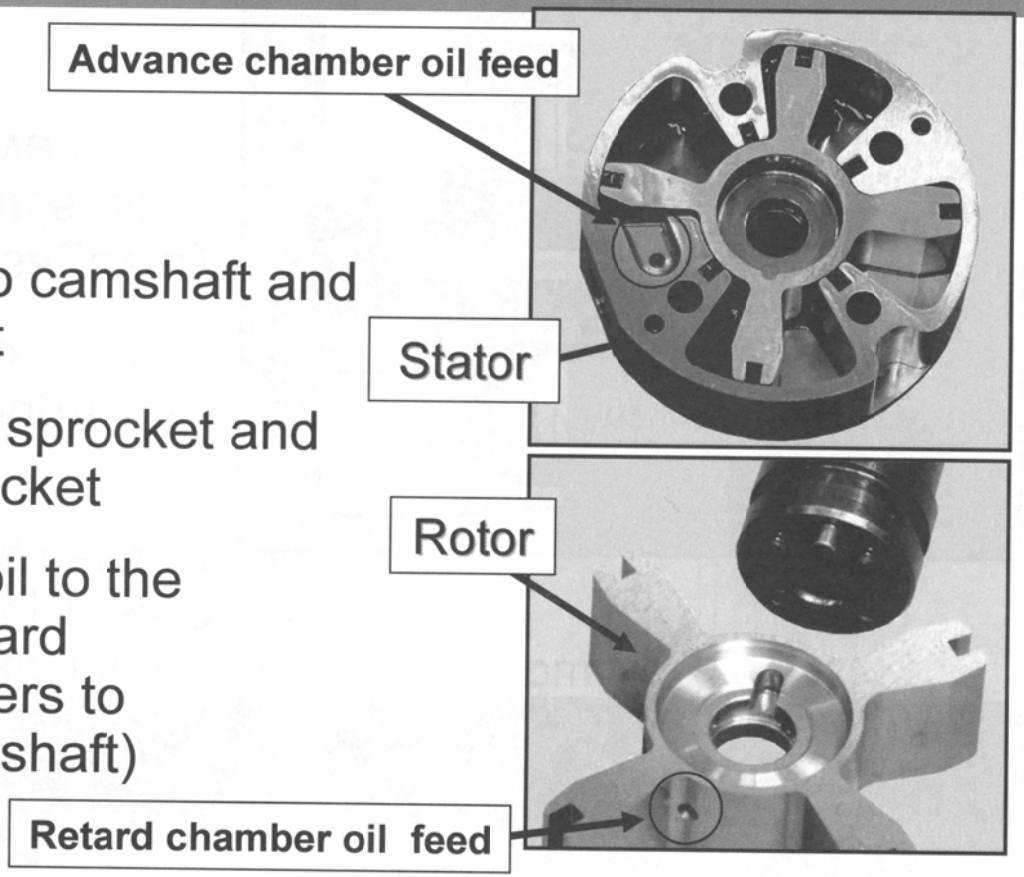


    - No parts available, purchase as 1 unit

CONCOURS™ 14 / ABS ZG1400A/B

Engine

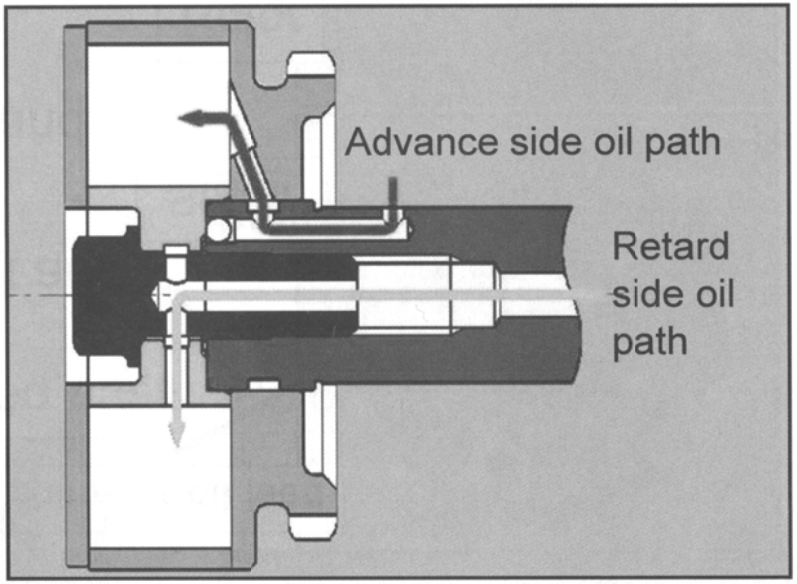
- **VVT**
  - Actuator
    - Rotor is bolted to camshaft and rotates camshaft
    - Stator is fixed to sprocket and rotates with sprocket
    - Passages feed oil to the advance and retard pressure chambers to rotate rotor (camshaft)



CONCOURS™ 14 / ABS ZG1400A/B

Engine

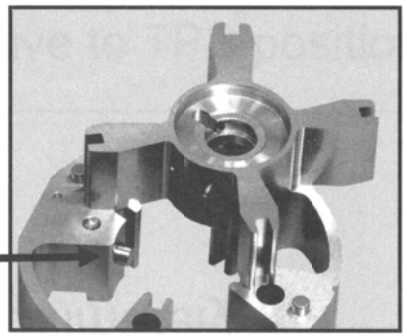
- **VVT**
  - Actuator
    - Oil supply is through the camshaft cap
    - Separate oil passageway than the camshaft's oil supply passageway

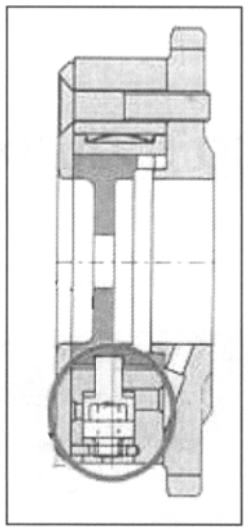


CONCOURS™ 14 / ABS ZG1400A/B

Engine

- **VVT**
  - Actuator
    - Lock system
      - A plunger pin in the stator locks the rotor's position during engine start
      - This is required because there may be insufficient oil pressure to hold the cam's position at very low engine rpm
      - The pin is retracted at a specified RPM





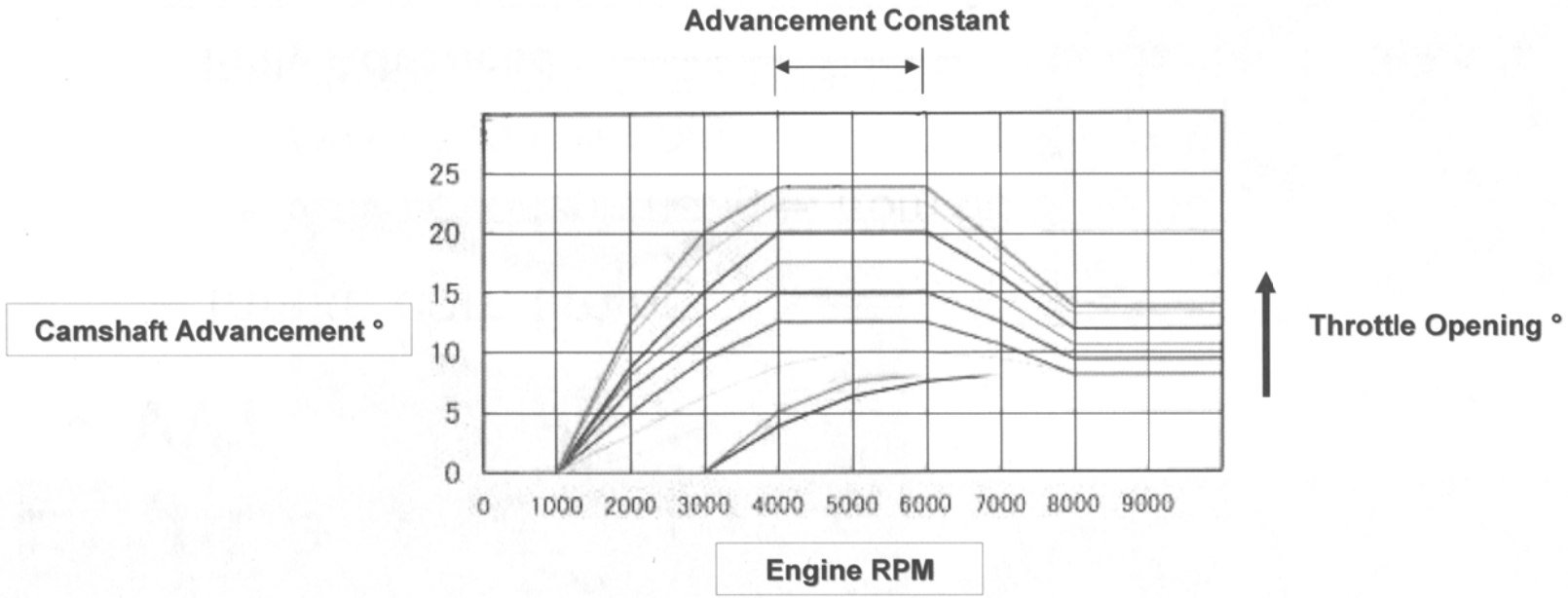
CONCOURS™ 14 / ABS ZG1400A/B

Engine

- **VVT**
  - Cam timing is advanced/retarded a maximum of 23.8 degrees
    - The advancement constant occurs approximately between 4,000 and 6,000 RPM
    - Exhaust cam timing is fixed
      - EO 58° BBDC
        EC 28° ATDC

Engine

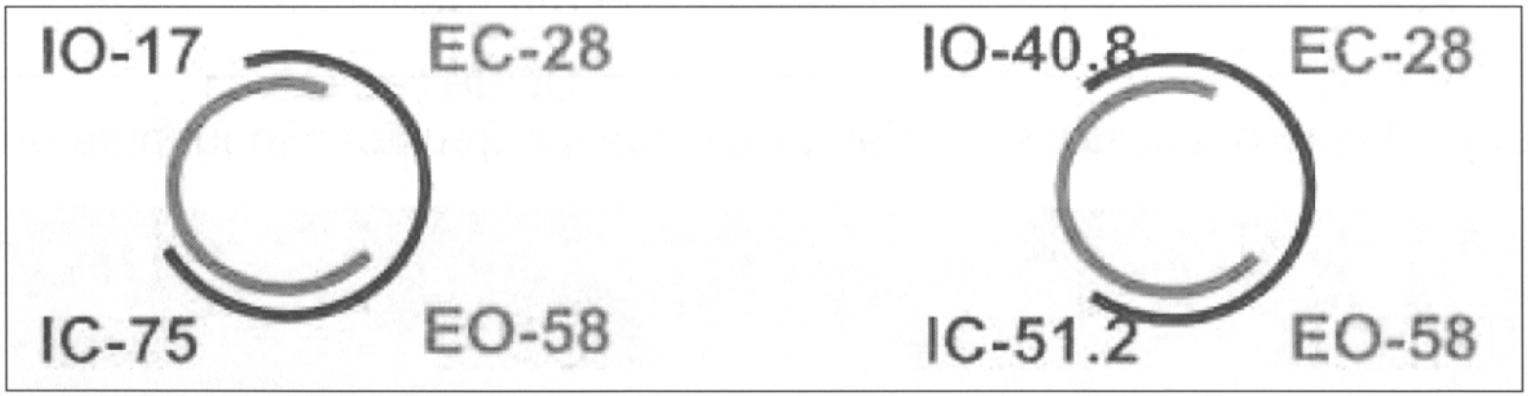
The amount of camshaft advancement degree is relative to TPS position



CONCOURS™ 14 / ABS ZG1400A/B

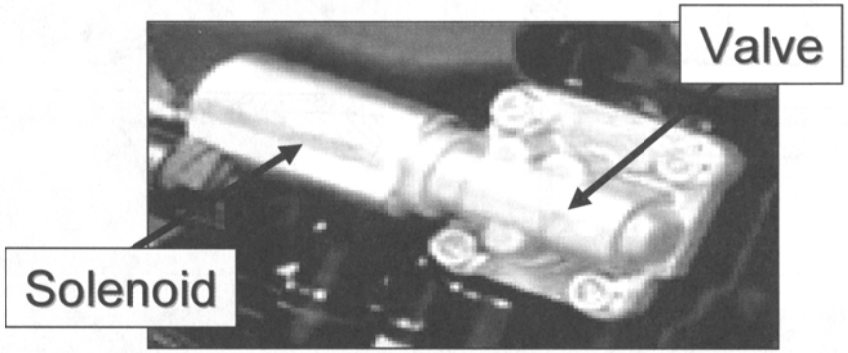
Engine

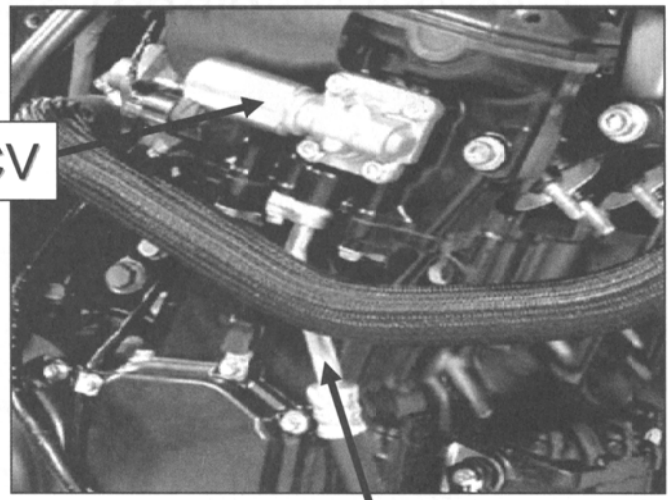
- **VVT**
  - Intake cam timing
    - Valve overlap changes from 68.8° to 45°



Engine

- **VVT**
  - Oil Control Valve (OCV)
    - Consists of a directional flow valve and solenoid

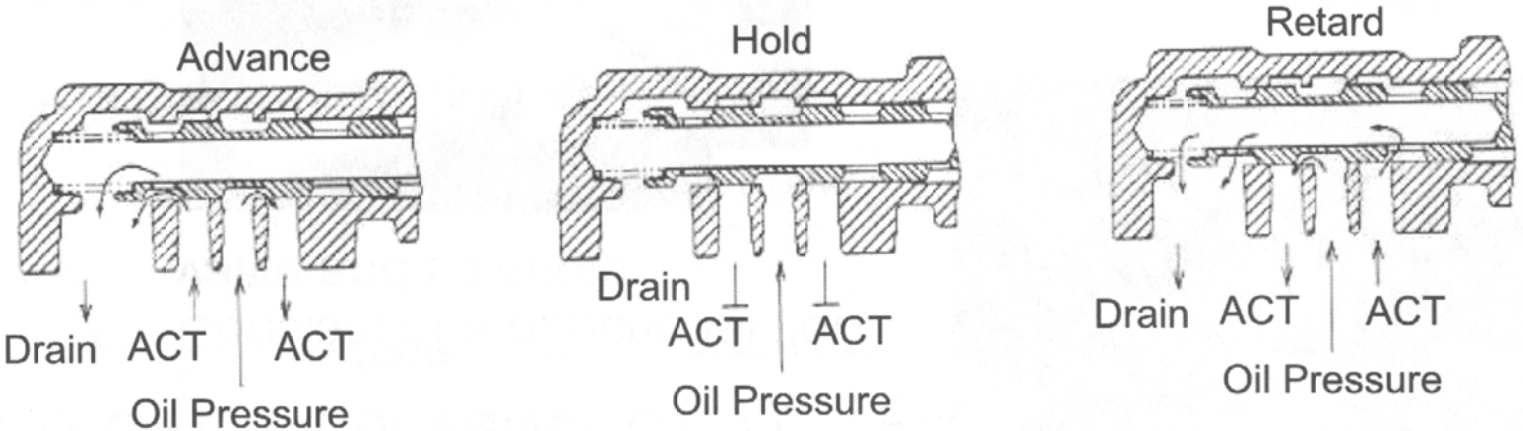




    - The ECU controls the solenoid's valve direction by using sensor inputs: CPS, TPS, WTS, Cam sensor (Intake)

CONCOURS™ 14 / ABS ZG1400A/B

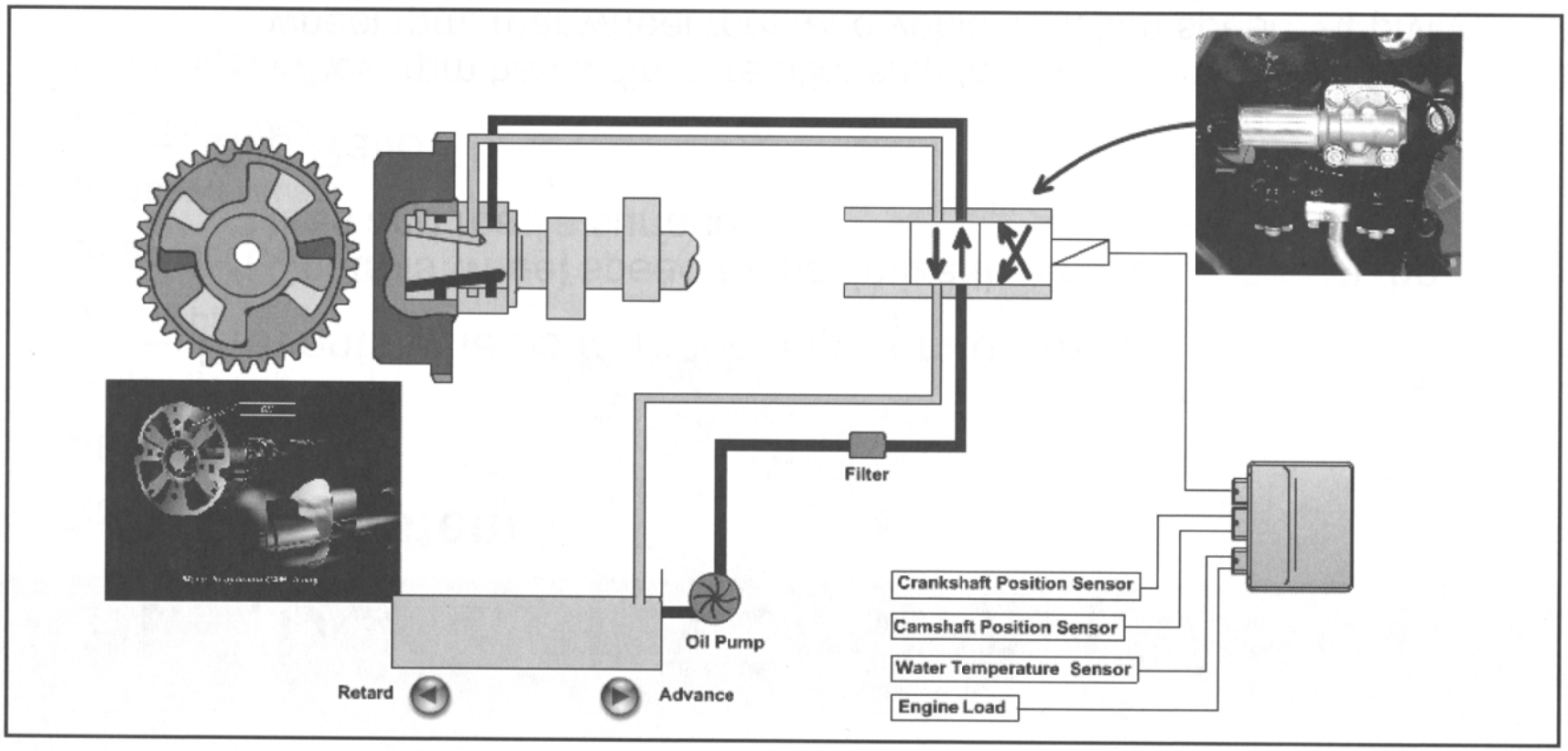
Engine



– The valve's travel distance/speed regulates the oil's pressure/volume to the actuator thus regulating the rotor's direction/speed. It also acts as a damper by keeping oil on both sides of the system.

CONCOURS™ 14 / ABS ZG1400A/B

Engine



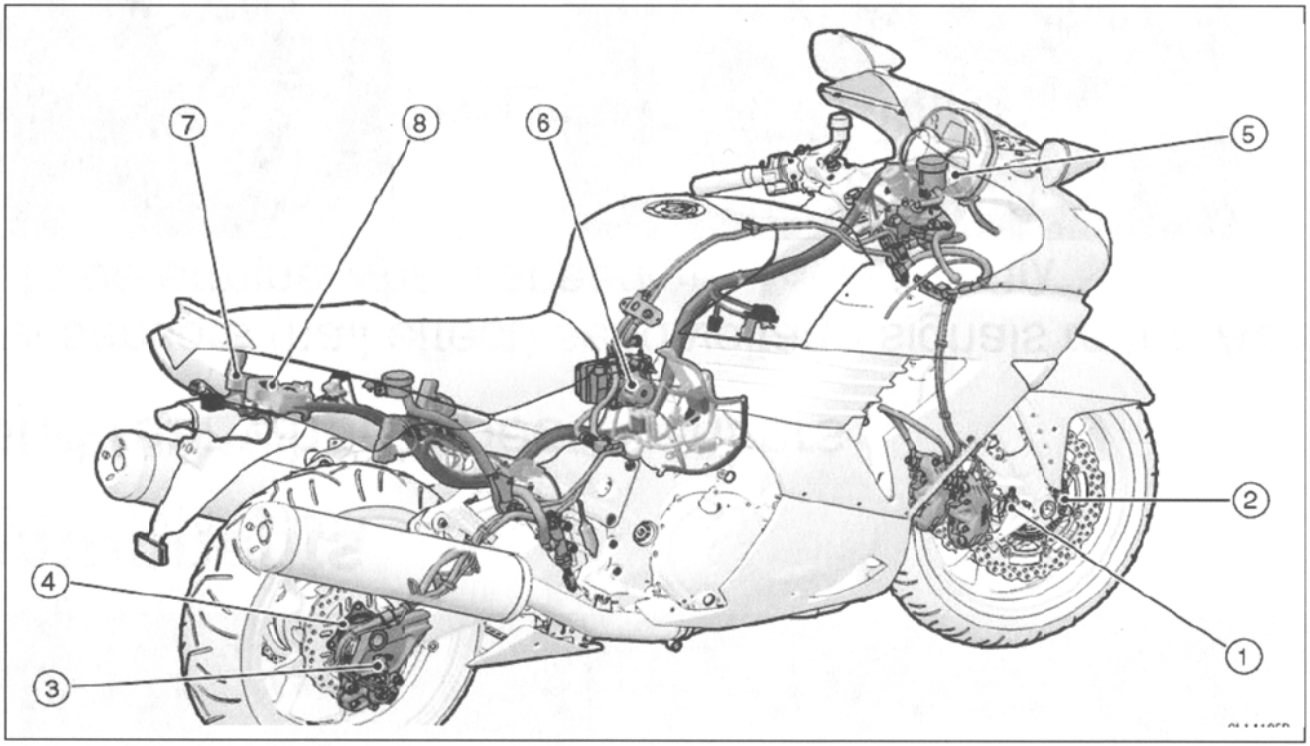
Anti-Lock Brake System (ABS)

- **Nissin system**
- **Purpose**
  - Prevents wheels from locking during braking
    - Controls wheel speed to maximize the friction between the tires and road's surface
  - Slip Ratio
    - Wheel rpm has a direct relationship to motorcycle speed: front wheel rpm, rear wheel rpm, and vehicle motion speed. Applying the brakes to a point where the tire(s) loose traction with the road surface will cause the wheel rpm to decrease, resulting in a difference between wheel rpm and the motorcycle speed. Basically, the Slip Ratio is defined as the difference between the calculated motorcycle speed to wheel rpm.

CONCOURS™ 14 / ABS ZG1400A/B

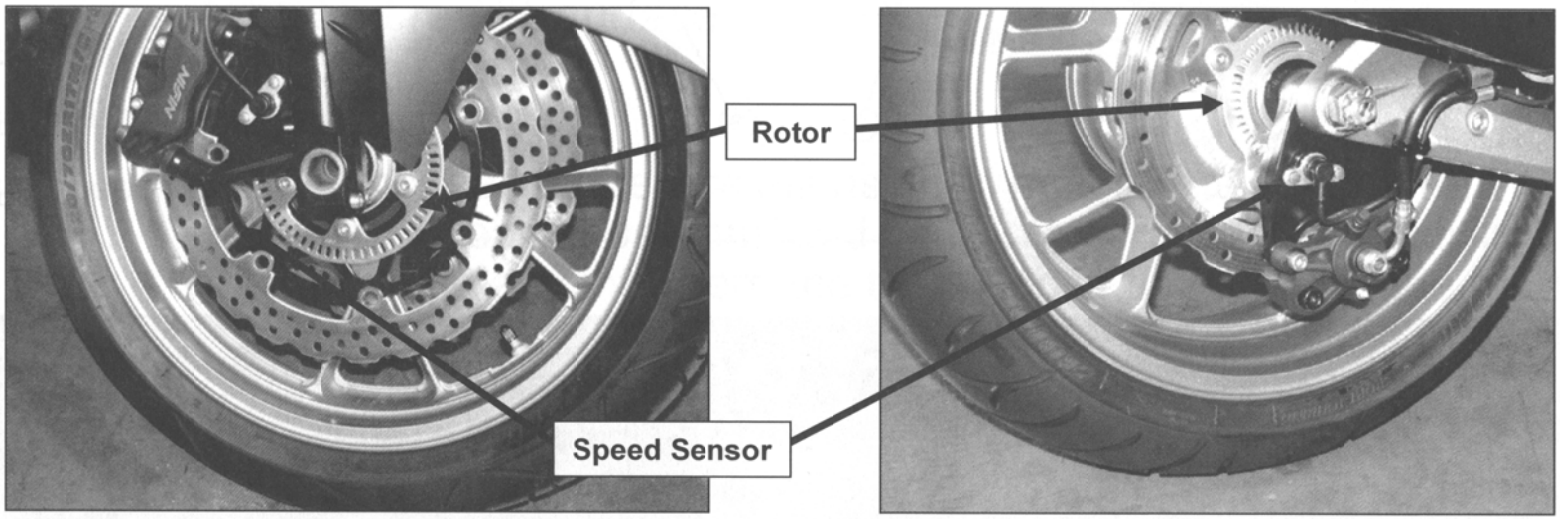
Anti-Lock Brake System (ABS)

1. Fr Speed sensor
2. Fr Sensor rotor
3. Rr Speed sensor
4. Rr Sensor rotor
5. ABS light
6. Hydraulic unit
7. ABS fuse box
8. KDS connector



Anti-Lock Brake System (ABS)

- **Main components**
  - Front and rear wheel speed sensors
    - Wheel sensors (hall effect) send voltage signals to the ABS ECU to determine wheel speed



Anti-Lock Brake System (ABS)

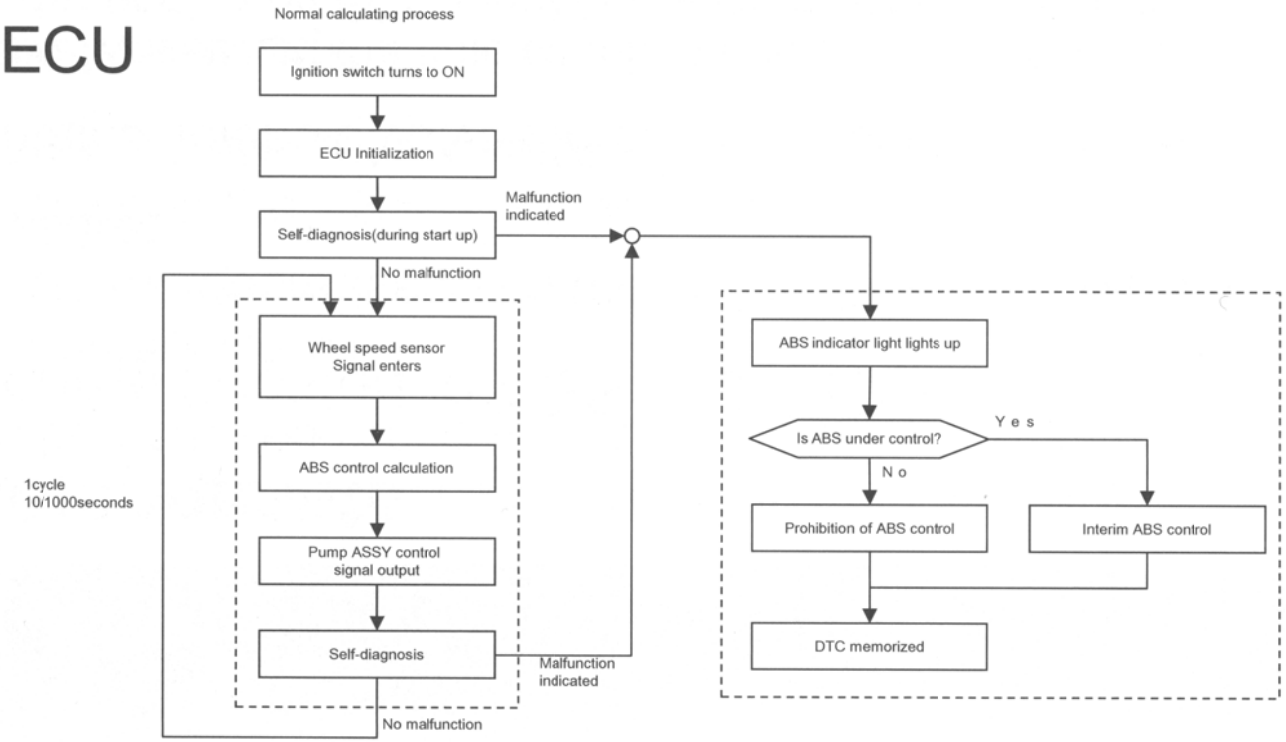
- **Main components**
  - ABS ECU (located in ABS hydraulic unit)
    - Using speed sensor input, ECU monitors wheel speed and controls the ABS's pump output accordingly
    - Inputs:
      - Speed sensors
      - Brake light switch
      - Ignition ON
      - Battery +12 vdc

Anti-Lock Brake System (ABS)

- **Main components**
  - ABS ECU (located in ABS hydraulic unit)
    - Outputs:
      - Diagnostics (KDS 3 and on-board)
      - ABS indicator light
      - ABS motor (ABS pump assembly)
      - Input and output valves to control pressure (ABS Pump assembly)

Anti-Lock Brake System (ABS)

- **Main components**
  - ABS ECU



CONCOURS™ 14 / ABS ZG1400A/B

Anti-Lock Brake System (ABS)

- **Main components**
  - ABS pump (located in ABS hydraulic unit)
    - Increases, decreases and maintains the brake system pressures
    - Contains solenoid valves to control circuit pressures
      - Valves switch the fluid circuit to one of three positions depending on ECU input (increase pressure, decrease pressure, or maintain pressure)
        - » Front inlet and outlet valves
        - » Rear inlet and outlet valves

Anti-Lock Brake System (ABS)

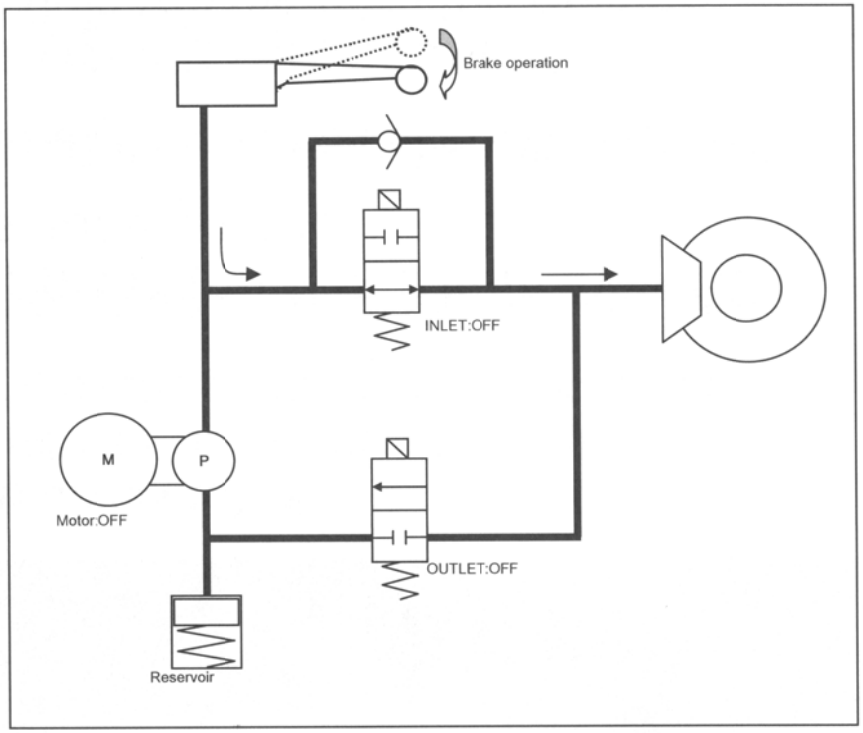
- **Circuit operation**
  - Malfunction mode
    - The valves are not energized (no signal from the ABS ECU) when the ABS is not activated
      - The inlet valve is naturally open and outlet valve is naturally closed
    - The pressurized brake fluid travels from the master cylinder to the brake caliper through the inlet valve

CONCOURS™ 14 / ABS ZG1400A/B

Anti-Lock Brake System (ABS)

- **Circuit operation**
  - Malfunction mode

	Signal	Fluid circuit
IN/V	OFF	Open
OUT/V	OFF	Close



Anti-Lock Brake System (ABS)

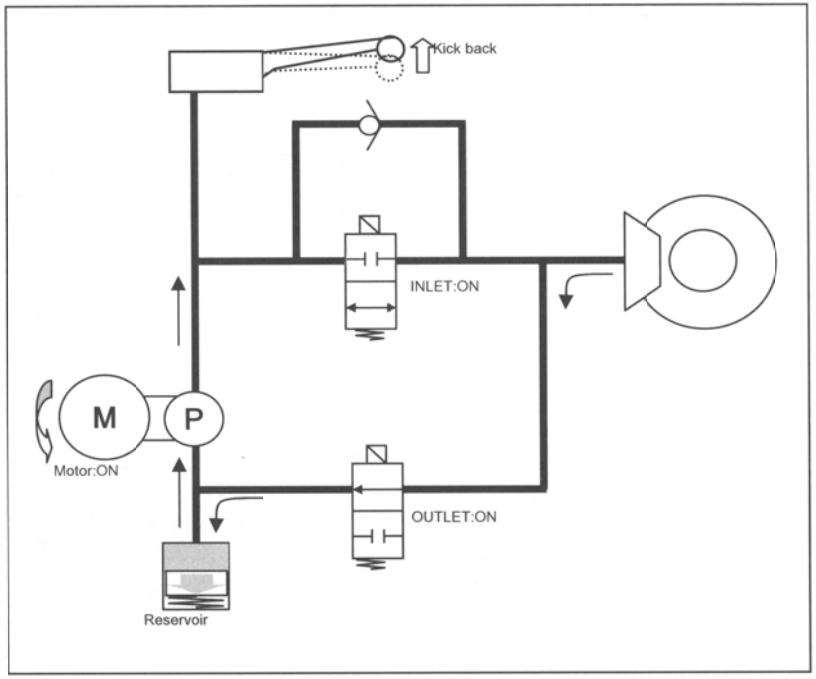
- **Circuit operation**
  - Pressure decreasing mode
    - If the slip ratio exceeds the set value, the ABS will lower the brake fluid pressure to prevent the wheel from locking
    - The ABS ECU sends the signal to decrease the pressure
      - Closes the inlet valve and opens the outlet valve
    - The brake fluid in the calipers flow through the outlet valve and then is pumped back to the master cylinder

CONCOURS™ 14 / ABS ZG1400A/B

Anti-Lock Brake System (ABS)

- **Circuit operation**
  - Pressure decreasing mode

	Signal	Fluid circuit
IN/V	ON	Close
OUT/V	ON	Open



Anti-Lock Brake System (ABS)

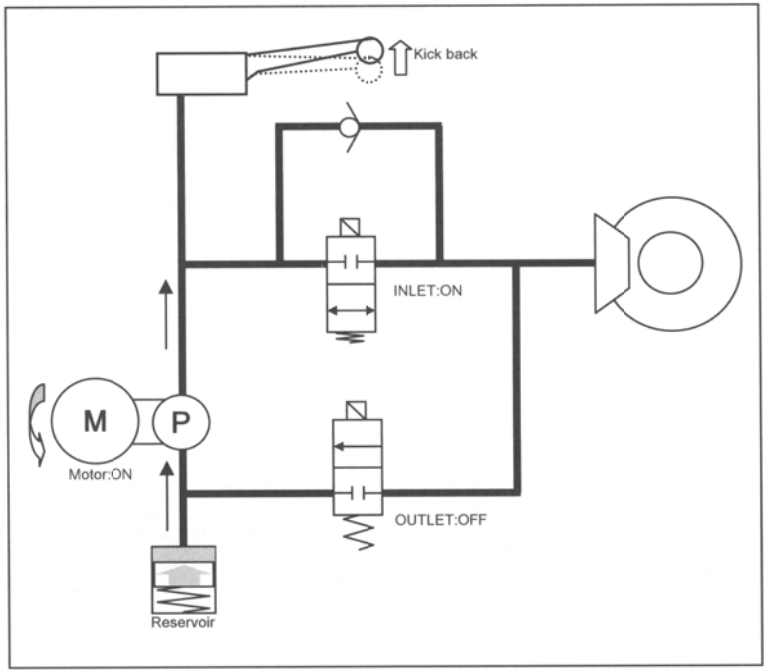
- **Circuit operation**
  - Pressure maintaining mode
    - If the braking wheel speed exceeds the set value, the ABS temporarily maintains the proper brake fluid pressure
    - The ECU sends the signal to maintain the pressure
      - Closes the inlet and outlet valves
    - The master cylinder and brake caliper's circuits are isolated from each other
      - This maintains the pressure at the calipers

CONCOURS™ 14 / ABS ZG1400A/B

Anti-Lock Brake System (ABS)

- **Circuit operation**
  - Pressure maintaining mode

	Signal	Fluid circuit
IN/V	ON	Close
OUT/V	OFF	Close



Anti-Lock Brake System (ABS)

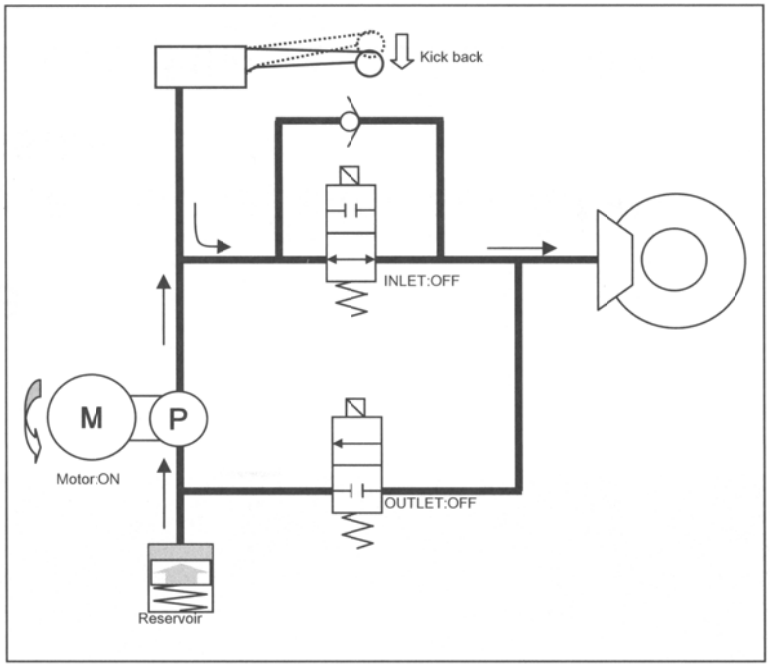
- **Circuit operation**
  - Pressure increasing mode
    - If the accelerating wheel speed exceeds the set value, the ABS increases the pressure
      - The ECU sends the signal to stop the valves from being energized
        - » Opening the inlet and closing the output valves which sends the brake fluid from the master cylinder to the brake caliper
      - The system also switches between the pressure maintaining and pressure increasing modes

CONCOURS™ 14 / ABS ZG1400A/B

Anti-Lock Brake System (ABS)

- **Circuit operation**
  - Pressure increasing mode

	Signal	Fluid circuit
IN/V	OFF	Open
OUT/V	OFF	Close



Anti-Lock Brake System (ABS)

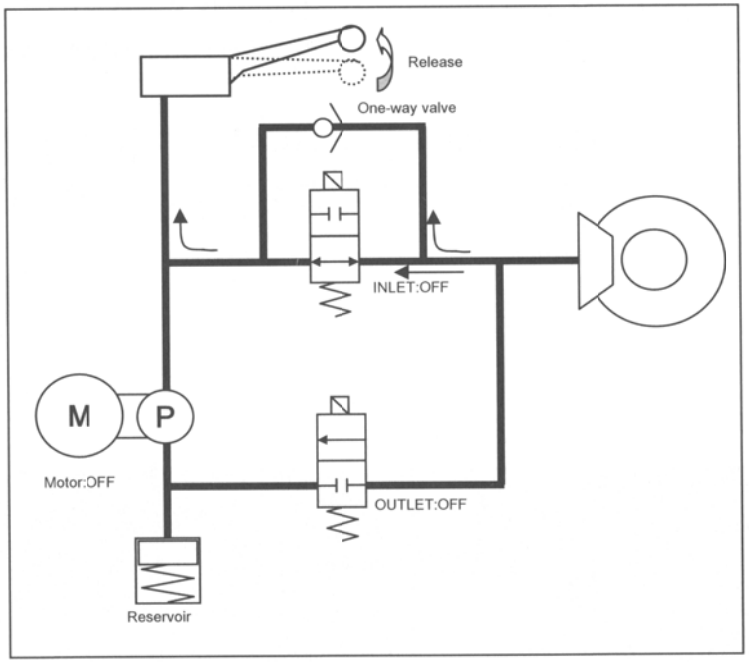
- **Circuit operation**
  - ABS is idle (no brake input)
    - Releasing the brake(s) opens the inlet valve (normal position) and closes the outlet valve (normal position)
      - Fluid within the brake caliper will return to the master cylinder through the one-way valve which is opened by the inlet valve and fluid pressure

CONCOURS™ 14 / ABS ZG1400A/B

Anti-Lock Brake System (ABS)

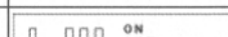
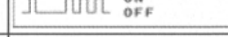
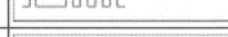
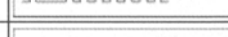
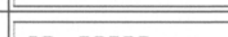
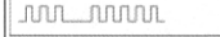
- **Circuit operation**
  - ABS is idle (no brake input)

	Signal	Fluid circuit
IN/V	OFF	Open
OUT/V	OFF	Close



Anti-Lock Brake System (ABS)

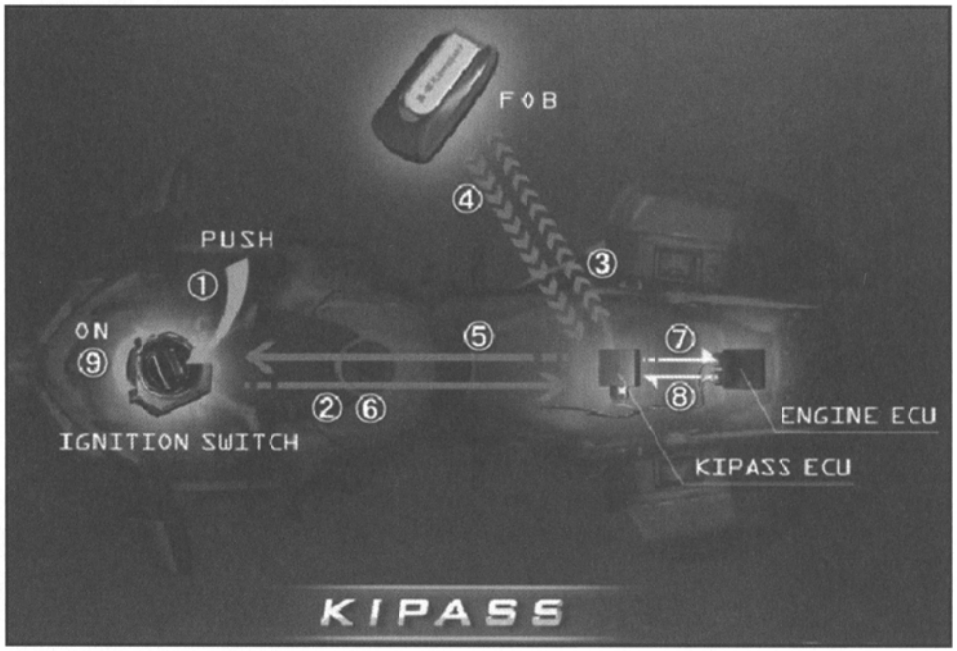
- **Circuit diagnosis**
  - The ABS light will come on during an ABS malfunction
    - KDS 3
    - On-board
      - ABS light will blink code(s)

Service Code	ABS Indicator Light (LED)	Problems	Light State
13		Rear inlet solenoid valve trouble (shorted or open, stuck valve (ON))	ON
14		Rear outlet solenoid valve trouble (shorted or open, stuck valve (ON))	ON
17		Front inlet solenoid valve trouble (shorted or open, stuck valve (ON))	ON
18		Front outlet solenoid valve trouble (shorted or open, stuck valve (ON))	ON
19		ABS solenoid valve relay trouble (wiring shorted or open, stuck relay (ON or OFF))	ON
25		Front, rear tire abnormal (substandard tire, deformation wheel, sensor rotor teeth number wrong)	ON
35		ABS motor relay trouble (wiring shorted, open or lock, stuck relay (ON or OFF)	ON
42		Front wheel rotation sensor signal abnormal (sensor or rotor missing, too large clearance, rotor tooth worn or missing)	ON
43		Front wheel rotation sensor wiring abnormal (wiring shorted or open)	ON
44		Rear wheel rotation sensor signal abnormal (sensor or rotor missing, too large clearance, rotor tooth worn or missing)	ON
45		Rear wheel rotation sensor wiring abnormal (wiring shorted or open)	ON
52		Power supply voltage abnormal (under-voltage)	ON
53		Power supply voltage abnormal (over-voltage)	ON
55		ECU trouble (ECU operation abnormal)	ON

CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

Kawasaki Intelligent Proximity Activation Start System



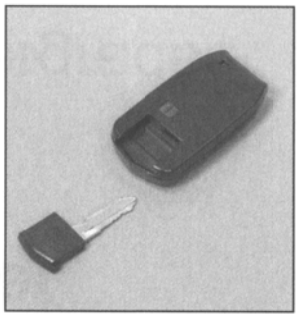
KI-PASS

- **Convenience: just place fob in pocket**
  - No need to insert traditional key in ignition
  - KI-PASS and Immobilizer systems are intergraded
- **Improved security**
  - Coding is based on Mitsubishi's "Misty" encryption algorithm
    - Multiple ECU units: Smart ECU, FI ECU and Steering Lock ECU are used for component registration
      - Correlation is therefore much more secure than in a single Immobilizer system

CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **Mechanical key**
  - KI-PASS does not apply to the fuel cap, seat, or bag locks: use mechanical key for these parts
  - Key location
    - One key is attached to the base of the ignition switch knob
    - One key is located in each FOB unit (latched)



KI-PASS

- **FOB**
  - 2 FOBs are supplied with each new motorcycle
  - FOB's working range is approx. 5 ¼ ft (from Smart ECU, located approx. mid-frame)
  - Additional FOBs
    - Up to a maximum of 6 FOBs can be registered with the Smart ECU at any one time
    - There is no limit to the number of times the FOB registration process can take place (up to a maximum of 6 registrations each time)

CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **FOB**
  - Each FOB is a transponder with an unique ID code
    - Transponder: receives, amplifies, and re-transmits signal
    - 2 FOBs are registered with the Smart ECU during production
  - Replaceable battery
    - Meter displays a low battery voltage caution
  - Mileage locator
    - If FOB is dropped (off unit) while riding, meter will display distance from point when FOB went out of range

KI-PASS

- **ECU communication**
  - Each ECU communicates via the CAN protocol
    - During this process, the system verifies that all ID codes match prior to enabling related components
  - The Smart ECU stores the last known ID codes for the FOB(s), FI ECU, Steering Lock ECU and Tire Pressure Sensors

CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **ECU CAN communication**
  - Smart ECU
    - ECU is ON at all times
    - Contains 6 FOB memory slots
    - Communicates via CAN with
      - Steering Lock ECU: registration (ID) information and steering lock-out information
      - Meter: TPMS warnings
      - FI ECU: engine start registration
      - KDS 3: for registration of new FOBs and components

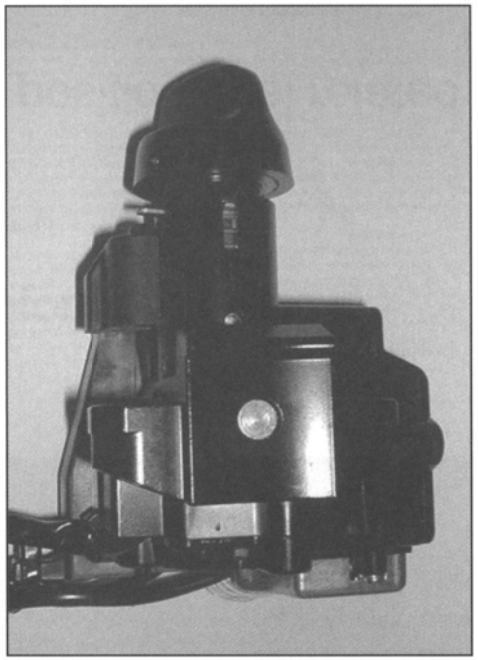
KI-PASS

- **ECU CAN communication**
  - FI ECU
    - Communicates via CAN with
      - Meter: engine RPM, water temp, gear position, fuel related info, diagnostic info
      - System diagnostics
  - Steering Lock ECU
    - Communicates via CAN with
      - Meter: unlock information

CONCOURS™ 14 / ABS ZG1400A/B

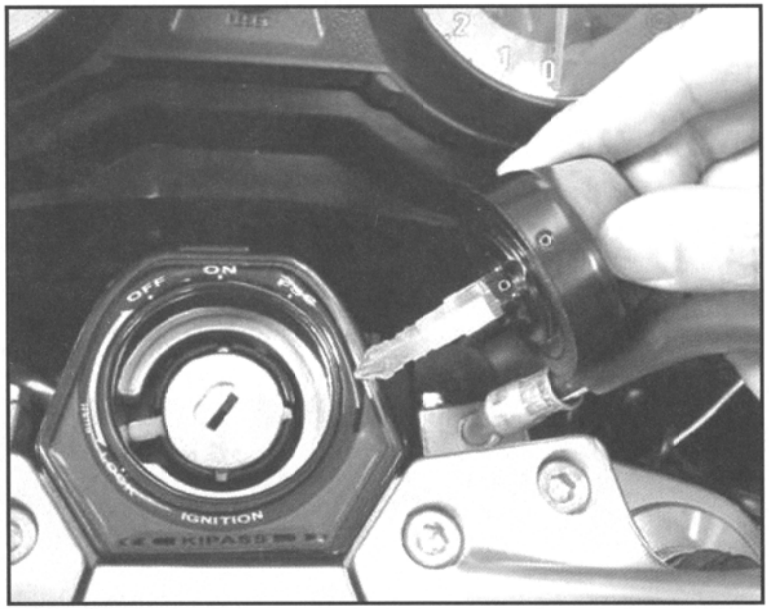
KI-PASS

- **Ignition switch assembly**
  - Contains
    - ID registration ECU
    - A solenoid activated steering lock
      - The solenoid is part of the switch assembly
      - The switch assembly is sold as a complete unit



KI-PASS

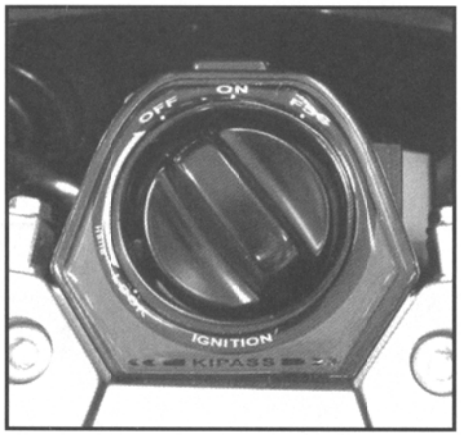
- **Ignition switch assembly**
  - Ignition switch - 4 position switch (operated with key)
    - – Off, On, FSS (Fuel, Seat, Storage), and steering lock
    - – The key can only be removed in the FSS position



CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **Ignition switch assembly**
  - Immobilizer antenna
    - Used when the battery voltage in the FOB is too low for the transmitter to operate
    - Place FOB on top of the antenna (ignition switch)
    - The antenna will boost the FOB's transponder signal to enable registration between the FOB and the Smart ECU (via the CAN system)
    - Antenna can be replaced without registration process



KI-PASS

- **System registration (turn ON unit)**
  - With FOB in range
    - Push in key
    - Smart ECU (ON at all times) sends ID signal to the FOB and the FOB returns an ID signal to start process
    - If accepted, Smart ECU sends ID signal to Steering Lock ECU via the CAN system
    - Steering lock ECU sends ID signal back to Smart ECU via the CAN system

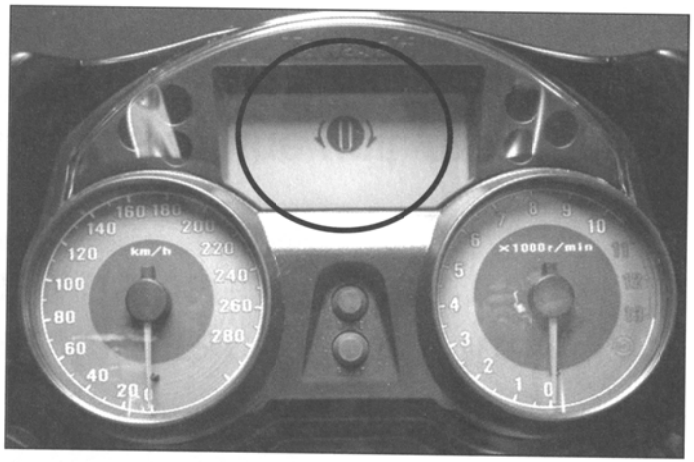
CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **System registration (turn ON unit)**
  - With FOB in range
    - If the Smart ECU recognizes the ID, it sends via the CAN system the proper ID codes to the Steering Lock ECU (to turn on the unit and to disengage steering lock), FI ECU, and TPMS

KI-PASS

- **System registration (turn ON unit)**
  - If registration is successful, the meter displays a “Lock Symbol” and the switch knob can turn
  - If 3~4 seconds elapse before the knob is turned, the system will shut off and the knob needs to be pushed in again



  - If registration is not successful, there is no indication on the meter and the knob will not turn

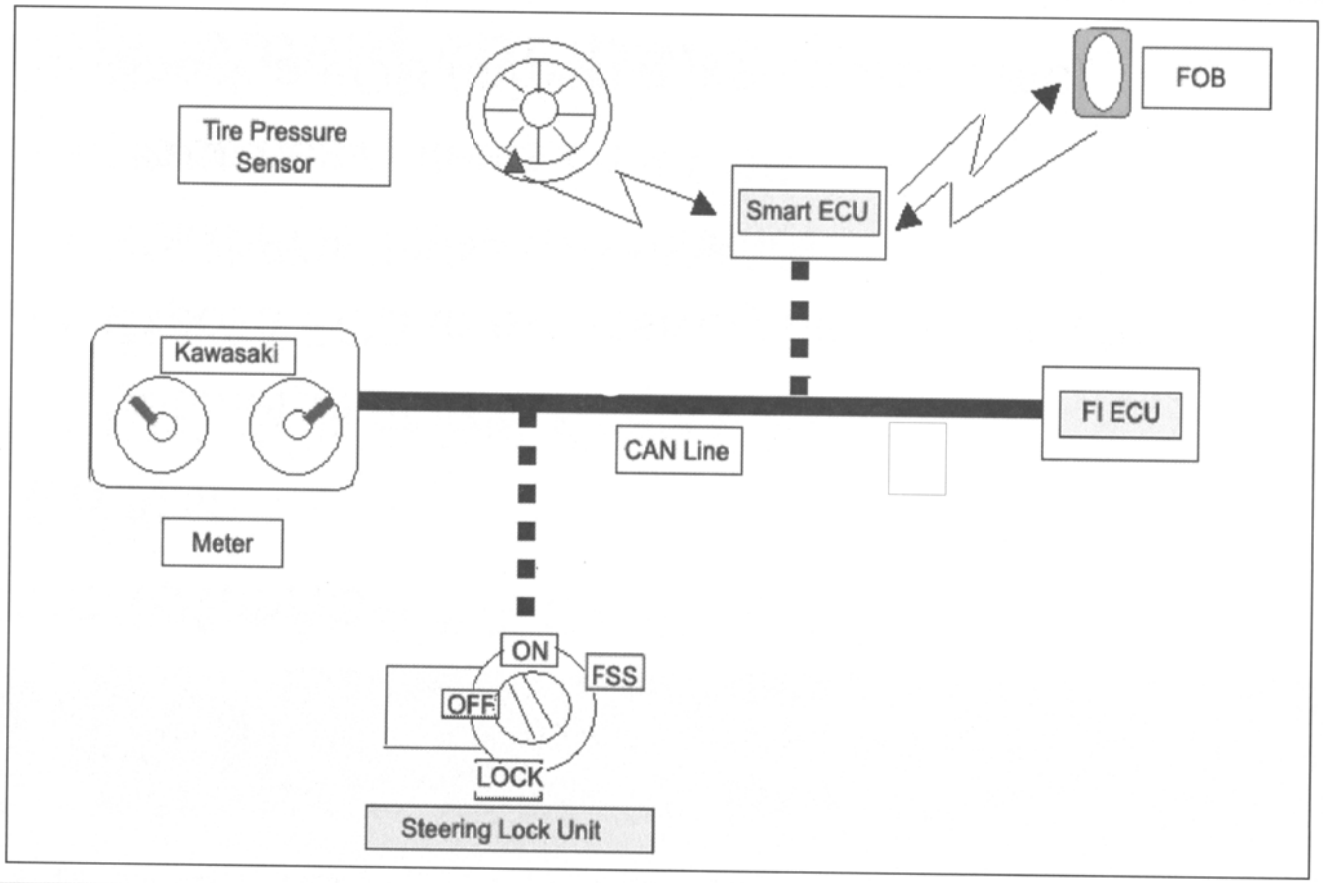
CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **System registration (turn ON unit)**
  - If multiple registered FOBs come into range, only the last known (stored) FOB ID that was used to start the unit is used
    - If next time a spare FOB is used to start the unit, then this FOB's ID is stored (as the primary)

CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS



KI-PASS

- **Precautions**
  - Do Not:
    - Submerge FOB in a liquid
    - Expose FOB to excessively high temperatures
    - Place FOB close to a magnet
    - Place heavy items on a FOB
    - Shock a FOB (throwing it on a table, etc)

KI-PASS

- **Replacement components**
  - Antenna
    - Replace antenna, no registration required
  - FI ECU
    - Must register with Smart ECU
  - FOB
    - Must register with Smart ECU
  - Steering Lock ECU
    - Must register with Smart ECU

CONCOURS™ 14 / ABS ZG1400A/B

KI-PASS

- **Replacement components**
  - Smart ECU
    - Must register with all other ECUs
  - Key replacement
    - Replace Steering lock assembly
      - Comes with new key
      - At the same time, replace components that are unlocked by key so they will match
      - Must register Steering lock assembly (ECU) with Smart ECU

KI-PASS

- **Replacement components**
  - Loss of all registered FOBs
    - BIG problem !!!
    - Replace all ECUs and locks
  - Pre-owned vehicle / Dealer trade-in
    - Dealer should re-register all available FOBs
      - Doing so will delete any missing FOB from the Smart ECU

CONCOURS™ 14 / ABS ZG1400A/B

Engine

- **Variable valve timing system (VVT)**
  - Intake camshaft is equipped with a hydraulically operated variable timing actuator
    - Varying the intake timing results in increased cylinder filling (at most engine rpms)
    - This results in an increase in torque
    - Exhaust cam timing is not variable