BMW R1200 GSA K25/32 Oil Head- 2013

SERVICE



This is intended as a guide only

This is a guide only please refer to the relevant manuals for full details or ask professional advice if in doubt.

This is the writer(s) interpretation of the required steps only and does not take any liability for the accuracy of the information supplied in this publication and it is supplied as is.

Amendment Record

Amendment No.	Amendment	Ву	Date
DRAFT	N/A	Joth	22 Oct 2016

Before carrying out the Procedure ensure you have the current amendment and the latest information from the manufacturer.

General Tools

Metric Spanners Metric Socket Set Torx Sockets

Torque Wrench 4 to 60Nm

Special Tools

GS-911
Oil Filter Spanner
Spark Plug Coil Puller
Thinned walled sparkplug socket

Required Fluids & Parts

1	1	
4.0 L	-	83122405891
1	32 Nm	07119963252
1	11 Nm	11427673541
4	12 Nm	12127726112
1	-	13717706414
180ml	-	
1	100ml	07559062476
1	20 Nm	33117695219
1	20 Nm	07119963132
1	4 Nm	34527708523
1	42 Nm	
700ml		
1	30 Nm	07119963200
1	30 Nm	07119963300
1.0 L	-	83132405976
	1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 32 Nm 1 11 Nm 4 12 Nm 1 - 180ml - 1 100ml 1 20 Nm 1 20 Nm 1 4 Nm 1 42 Nm 700ml 1 30 Nm 1 30 Nm

General Torque Values

Where Torque settings are not detailed the following are a guide only.

Steel

M4	3 Nm
M5	6-8 Nm
M6	10-14 Nm
M8	24-27 Nm
M10	51-54 Nm

Stainless Steel (Lubricated)

M4	2-3 Nm
M5	4-5 Nm
M6	7-8 Nm
M8	19-20 Nm
M10	37-38 Nm
M12	66 Nm

Note: Stainless steel fasteners tend to gall while being tightened.

The risk of galling or thread seizing can be reduced by:

1. Using lubrication (copper slip etc.)
2. Tighten fasteners with low rpm's; without interruptions

R1200 GS Adventure SERVICE

Registration Odometer reading (Miles) Date	Service by
Reading fault Codes from ECU Memory & Update Display (GS911 Req'd)	Annually / 6000 miles
Checking valve clearance (Note: Bike must be cold)	Annually / 6000 miles
Oil change, engine, with filter	Annually / 6000 miles
Oil change & Lubricate splines rear wheel final drive	2 Years / 12000 miles
Oil Change, Gearbox (Transmission)	2 Years / 24000 miles
Changing brake fluid, front & Rear. (DOT4) (GS911 Req'd)	2 Years
Right Cylinder InletTopmmBottommmRight Cylinder ExhaustTopmmBottommmLeftCylinder InletTopmmBottommmLeftCylinder ExhaustTopmmBottommm	
Checking Exhaust Flap/Valve Free Movement (GS911 Req'd)	Annually / 6000 miles
Replace spark plugs (4 Number)	12000 Miles
Replacing / Clean air filter element	12000 Miles
Replace belt for generator	6 Years /24000 miles
Visual inspection of hydraulic clutch system	Annually / 6000 miles
Visually inspecting brake pipes, brake hoses, connections & pads / discs for wear	Annually / 6000 miles
Front Right Pad mm Disk mm Front Left Pad mm Disk mm Rear Pad (Visible Bars) Disk mm	
Checking freedom of movement of Bowden cables and checking for kinks and chafing	Annually / 6000 miles
Checking tyre tread depth and tyre pressure	Annually / 6000 miles
Front Tyre Pressure Depth mm Rear Tyre Pressure Depth mm	
Checking ease of movement of side stand	Annually / 6000 miles
Checking ease of movement of centre stand	Annually / 6000 miles
Checking security of threaded fasteners for centre stand	Annually / 6000 miles
Checking spoke tension, adjusting if necessary	Annually / 6000 miles
Checking lights and signalling equipment	Annually / 6000 miles
Function test, engine start suppression	Annually / 6000 miles
Correcting engine synchronisation (GS911 Req'd)	Annually / 6000 miles
Final inspection and check of roadworthiness Reset Fault Codes (GS911 Req'd)	Annually / 6000 miles
Reading fault memory & Reset Service Reminder (GS911 Req'd)	Annually / 6000 miles
Next Date Mileage	

Reading fault Codes from ECU Memory & Updating Display Units

Connect the GS911 to the Bike and Windows Tablet / Laptop 2 Switch on the bike (but do not start the bike) Run the GS911 Application Select the R Series from the menu 3 Select R1200 GS Adventure 2006-2014 4 Select Auto Scan from the Menu Click the Perform Auto Scan Button Wait for the results to be obtained ... 7 Scroll down the results and check for faults Make a note of any codes and check any problems where fault is remaining active. A few codes seem to be re-appearing but say "The fault is not present now" they only seem to appear when battery is low, alarm goes off, removing sensors or ignition is left on without starting the bike during the service. 9 Clear codes Change display Options (Optional procedure) Select the R Series from the menu Select R1200 GS Adventure 2006-2014 Select Coding (wait for settings to be displayed) Update Settings as Required Click Apply Changes 10 Switch off the bike 11 Disconnect the GS911

Checking valve clearance (Ensure Bike is Cold)

- 1 <<< Ensure ignition is off & Bike Cold >>>
- 2 Remove cylinder head cover plate by removing 3 bolts and bushings.
- 3 Pry spark plug lead cover off of the cylinder heads
- 4 Disconnect the plug by pushing the plug away from the locking tab and pull the cable.
- 5 Remove the direct ignition coil with the special puller.
- Remove M6 screws and remove cylinder head cover catching escaping oil in a suitable container.
- 7 Remove the 2 gaskets.
- 8 Engage highest gear and turn rear wheel in its normal direction until the marks on camshafts are vertical and close to each other.
- 9 Check valve clearances

 with feeler gauge, between cam and cam follower.

 (4 on each head 2 inlet & 2 Exhaust))

Inlet 0.13 to 0.23mm max with engine cold Exhaust 0.30 to 0.40mm max with engine cold

Note: do not measure at the recess of the cam.

Replace oil sinks if out of tolerance.

- 10 Replace Gaskets which must be free of oil and grease (Replace if damaged)
- 11 Align the retaining clip on the exhaust cam follower to ensure it does not get pushed off when installing the valve cover.
- Push valve cover in place and tighten M6 screws.
- 13 Insert & Re Connect Coil & Replace Cover
- 14 Refit the cylinder head cover plate with the 3 M6x25 bolts and bushings.

Note: Bushings are located between the cylinder head and cover.

Repeat procedure items 2 to 14 on both cylinders.



Torx T30





Torx T40



Inlet 0.13 to 0.23mm Exhaust 0.3 to 0.4mm

Record Results (See Page 5)





Torx T40 10 Nm



Torx T30 10 Nm



Oil change, engine, with filter

1 Remove the Oil fill plug from the right hand cylinder head.



- 2 Remove the bash plate from under the engine.
 - 2 x Back M8 Nuts
 - 1 x Front left M6 x 30 screw
 - 1 x Front right M6 x 20 screw



13mm Torx T25 Torx T30

- 3 Place a suitable tray under the engine.
- 4 Remove the M18x1.5 drain plug.
- 5 Remove the Aluminium sealing ring from plug.
- 6 Allow the oil to drain out.



- 7 Remove the oil filter with the special tool.
- 8 Fill the new filter with oil.
- 9 Lubricate the oil filter sealing ring with oil.
- 10 Screw in the new filter and tighten to 11 Nm.



11 Nm

- 11 Replace the Aluminium sealing ring "Washer" on the drain plug.
- 12 Screw in the drain plug and tighten to 32 Nm



New M16x1.5 Washer

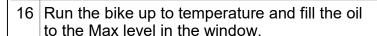
32 Nm

Pour in the new oil until the level in the sight glass is full.



Approx Oil capacity 4.0 litres

- 14 Refit the bash plate with;
 - 2 x Back M8 Nuts
 - 1 x Front left M6 x 30 screw
 - 1 x Front right M6 x 20 screw
- 15 Refit the plastic filler cap.



17 Oil level should be between Min & Max at all times.



19 Nm (13mm) 10 Nm (T25) 10 Nm (T30)

Oil change rear wheel drive & Lubricate Splines

- 1 Put bike on centre stand.
- 2 Use a jack to steady the rear of the bike.
- 3 Remove the rear plastic fender (mud guard).
- 4 Remove the rear wheel.
- 5 Remove rear brake caliper (2x M8x25 Bolts) Bungee the caliper to the bike to support.
- 6 Release sensor cable from clip.
- 7 Remove rear wheel sensor guide.
- 8 Remove rear wheel sensor complete with
- 9 'O' Ring and Centering Ring.



- 10 Place a suitable tray under the final drive.
- 11 Remove the oil drain plug with the 'O' Ring
- 12 Replace the 'O' ring if there is any damage.
- 13 Allow the oil to drain out.
- 14 Refit the oil drain plug & black 'O' ring.
- 15 Remove paralever Screw, washer & Nut
- 16 Allow final drive to gently drop down.



20 Nm



17 Clean and grease the splines.
(Also: Apply Paste to the Gaiter ends)

The paste (grease) mainly prevents rust/corrosion of the splines & fittings)



- 18 Swing the final drive back up.
- 19 Ensure the splines are aligned and seated.
- 20 Ensure the gaiter is aligned and seated. (Note: Fit smaller gaiter end first)
- 21 Install the Screw, washer and NEW nut.



New Nut Req'd 42 Nm (T45)

- Fill the final drive through the sensor hole with 180ml of gear oil.
- 23 Install a new Green 'O' Ring (smear with oil)
- 24 Re Fit Speed sensor with the M5x10 screw



180 ml

'O' Ring (new)

4 Nm (T25)

- 25 Re-install rear wheel sensor guide/screw.
- 26 Insert sensor cable into clip.
- 27 Re install rear caliper
- 28 Re Install rear wheel (NOTE: tighten bolts in diagonally opposite sequence)
- 29 Re Install Rear Fender (Mud Guard)

5 Nm (T25)

24 Nm 60 Nm

Oil Change, Gearbox (Transmission)

1 2	Remove the gear box filler plug Discard the aluminium sealing ring.	Torx T50
3 4 5 6 7	Place a suitable tray under the gear box. Remove the oil drain plug. Discard the aluminium sealing ring. Remove chips of metal from the drain plug. Allow the oil to drain out.	19mm
8	Fit a new sealing ring to the drain plug.	New Ring 14x18-AL
9	Replace the oil drain plug.	30Nm (19mm)
10	Fill gear box with oil.	Approx 700ml
11	Fill to the bottom edge of thread in filler neck.	
12	Fit a new sealing ring to the oil filler plug.	New Ring 20x22-AL
13	Replace the oil filler plug.	30 Nm Torx T50

Changing brake fluid, front & Rear. (DOT4 fluid)

1 2	Clean reservoirs and remove the caps. Remove most of the fluid from reservoirs (Note: never let the reservoires run dry).		
3 4 5	Unbolt the caliper(s) from the bike Remove brake pads. Clean pistons with brake cleaner/tooth brush.		
6 7 8	Push caliper pistons into the caliper bodies Place a wooden shim between the calipers and pistons to stop them from operating and secure so they don't drop out. Again remove most of the old fluid from the reservoirs. (Note: never let the cylinder run dry)		
9	Connect the vacuum pump to the bleed nipple		
	Top up the master cylinder with fresh fluid. Pump the Vacuum pump up to pressure Loosen the bleed nipple about 1/4 of a turn to allow the fluid to flow out. Gently tighten nipple before the master cylinder runs out of fluid.	Note: old way of bleeding brakes with a pipe and jar can be used instead of using a vacuum pump.	
2	Repeat 10 to 13 until clear fluid comes out		
14	Remove the vacuum pump and pipe		
15 16 17	Repeat 9 to 14 on all 3 Calipers Front Right Front Left Rear		
18	Cycle the Brake Modulator (ABS) using the GS-911 You squeeze the brake lever 3 times holding for 2 sec's each time. When the modulator stops operating a window will appear stating if air is still in the system it needs to be bled again.	GS911 Menus : ABS System ABS Bleed Test Front Brakes Rear Brakes	
	Bleed the brakes again before cycling the Brake Modulator again.		
19 20	Repeat bleeding steps 9 to 17 Tighten the Bleed nipples.		Front (10 nm) Back (5 Nm)
21	Remove the wooden shims.		Zack (o ruii)
22			
23	pads and retaining pin. Replace the brake pads retaining pin and retainer 'R' clip.		
23	Replace the calipers back on rotors and torque bolts to required setting.		Front (30 Nm) Rear (24 Nm)
24 25 26 27	Fill master cylinder to correct level Squeeze brakes a few times to bed the pads against the rotor. Fill master cylinder to correct level Replace master cylinder cap.		

Checking Exhaust Flap/Valve Free Movement

1 Remove the 2 cover screws 2 Remove exhaust flap cover



- 3 Loosen the cables.
- 4 Remove the cables from the flap.



- 5 Check ease of movement by rotating the valve wheel.
- 6 Wheel should easily spring back on its own.



- 7 If the valve is stiff then ...
- a Remove the 2 clamps holding the flap.
- b Remove the silencer. (M8x45 Bolt)
- c Slide the flap of the exhaust.
- d Grease the flap and work the flap loose so it returns on its own.
- e Slide the flap back onto the exhaust pipe.
- f Refit the silencer M8x45 Bolt

19 Nm

g Refix the flap with 2 x clamps & M8x40 bolts

Note: Align marks on flap and clamps.

28 Nm Note: Changed bolts to Stainless Steel with copper slip ... so 20 Nm

- 8 Reconnect the cables & Tighten nuts
- 9 Refix plastic cover
- 10 Re calibrate the flap with the GS-911

GS911 Menus
Engine
Adaptations
Adjustment of Exhaust Flap
Click Press Reset button

Replace spark plugs (4 Number)

Removing Primary Spark Plugs

- 1 Remove both cylinder head cover plates by removing 3 bolts and bushings on each plate.
- 2 Pry spark plug lead covers off of the cylinder heads.
- 3 Disconnect the electrical plug from the coil by pushing the plug away from the locking tab and pulling.
- 4 Remove the direct ignition coils with the special puller.
- 5 Using the thin walled spark plug spanner remove both spark plugs.



Torx T30

- 6 Replace both plugs with new ones.
- 7 Refit the direct ignition coils by pushing in.
- 8 Re-connect the electrical plugs.
- 9 Refit the plastic spark plug lead covers.

12 Nm

Removing Secondary Spark Plugs

- 10 Removing bottom plastic cylinder cover by removing the 3 screws
- Push the coil electrical plug away from the tab and carefully pull the cable to disconnect.
- 12 Pull off the secondary spark plug coils.
- 13 Using the thin walled spark plug spanner remove both spark plugs.
- 14 Replace both plugs with new ones.
- 15 Refit the direct ignition coils by pushing in.
- Re-connect the electrical plugs.
 Refit bottom plastic cylinder covers

17 Refit the cylinder head cover plates with the 3 M6x25 bolts and bushings.

Note: Bushings are located between the cylinder head and cover.



12 Nm

10 Nm

Torx T30

Replacing / Clean air filter element

1	Remove Right side cover by removing 1 screw.
2	Remove Right side panel by removing three screws.
3	Remove right GS trim panel by removing 2 screws.
4	Remove air intake pipe by;
	disengaging retainer by pressing at the rear.
	Pull the locator to the side and out of the rubber sleeve.
5	Remove the filter and replace.
6	Replace air intake pipe by; Pushing in the retainer (audible click). Push the retaining pin fully home in the rubber sleeve.
7	Check the throttle valve cable is seated in the guide of the air intake pipe.
8 9 10	Refit the right GS trim panel (2 screws) Refit the Right side panel (3 screws) Refit the right side cover (1 screw)

Replace belt for generator

1	Remove Crash Bars	
2	Remove belt guard	
3	Remove alternator drive belt	
4	Install new alternator drive belt using special tool	
5	Install belt guard.	5 Nm
6	Install Crash Bars.	
	Crashbar to crank case M10x30 Tank guard to fairing bracket M6x16 Crashbar to front frame M6x16	25 Nm 9 Nm 9 Nm

Visual inspection of hydraulic clutch system

1 Check the following;

Clutch slave cylinder and master cylinder

Fluid Level

Clutch line for damage and leaks

Visually inspecting brake pipes, brake hoses, connections &

1 Visually check the following;

All Lines and Joints for Leaks

All Lines for deformation and damage

Brake fluid level Front

Brake Fluid Level Rear

2	2 Brake Pads for wear		Minimum
	Left Front	Wear indicator groves visible	1.0mm
	Right Front	Wear indicator groves visible	1.0mm
	Rear	Bars Visible	1.0mm

3 Brake Disks for wear

Left Front	(minimum thickness)	4.0mm
Right Front	(minimum thickness)	4.0mm
Rear	(minimum thickness)	4.5mm

Checking freedom of movement of Bowden cables and checking for wear

- 1 Check the Bowden (accelerator) cables for kinks and chafing.
- 2 Fully open the throttle twistgrip at different handlebar positions and then release making sure the throttle twistgrip returns to the closed position by itself.
- Turn the handlebars to the full-lock positions and check the play at the throttle twistgrip.

Checking tyre tread depth and tyre pressure

- 1 Check Tyre depths with depth gauge
- 2 Check tyre pressures with gauge

Checking ease of movement of side stand and Centre Stand

- 1 Put the side stand down and back up to check the freedom of its movement.
- 2 Put the centre stand down and back up to check the freedom of its movement.
- 3 Check Centre Stand bots for tightness

M10 40 Nm

Checking spoke tension, adjusting if necessary

Tap each spoke with a screw driver Each spoke should sound the same Adjust if required

Checking lights and signalling equipment

1	Check Front Head Light Dimmed Check Front Head Light High Beam
3	Check Front Head Alignment
4	Check Indicators Left Right Hazards
6	Check Rear Light
7	Check Brake Light Front Brake Rear Brake
8	Check Spot Lights
9	Check Horn Operation

Function test, engine start suppression

1	Ensure rear wheel is off the floor and free to turn.
2 3 4 5 6 7	Move the kill switch to the centre run position. Select neutral. Switch on the ignition (Neutral light lights up) Select a gear (Neutral light goes out) Press the starter button. Starter does not operate.
10	Put the side stand down. Pull the clutch lever. Press the starter button. Starter will not not operate.
13	Put up the side stand. Press the starter button without releasing the clutch lever. Starter operates correctly.

Correcting engine synchronisation

- Check the action of the throttle cables are smooth, throttle cables not chafing or kinked and correctly routed.
- Make sure you have throttle cable slack before running any tests.
- The engine must be at running temperature so take the bike for a ride. The GS911 software will tell you if it's to cold.
- 4 Turn off the engine
- 5 Connect GS-911 to the bike and computer.
- Turn ON the ignition, do NOT start the bike
- 7 Go to engine and do an IAC 'Idle Actuator Calibration'
- Leave the ignition ON, engine OFF 8
- After the IAC, click 'engine synchronization'

It will give you a warning screen with several statements about engine tune up, cable length, etc.

click on LOCK IDLE ACTUATORS

You will then get another message box saying to remove the protective caps and to hook up your manometer tubes and to NOT start the engine until instructed.

- Hook up the up the manometer, Click Ok.
- 12 Start the engine.
- 13 This is when you actually do the TBS cable adjustment on the right side of the engine.

Do the TBS between 1400 to 1800 RPM

14 If the vacuum is in balanced adjusting as required.

Ensure the engine does not overheat ...

- 15 Once balanced switch off the engine.
- Tighten adjustment nuts.
- Remove the manometer and replace the 17 rubber protective caps.

Differential Idle = 25 Bar

1400-1800 = 15 Bar

Final inspection and check of roadworthiness

1	Check all bolts and fastenings have been tightened to the correct Torque and fluids to correct levels.
2	Check operation of all instruments / Display.
3	Check that the engine is in full working order.
4	Check operation of the running gear.
5	Check operation of brake system and fluid level.
	"Static Brake Test"
6a	Start the engine.
6b	Check operation of kill switch.
7	Clear fault codes before Road Test.
8	Road Test including "Moving Brake Test"
9	Checking engine oil level and fill as required after the road test and engine is up to Temperature.

Reading fault memory & Reset Service Reminder

- 1 Connect the GS911 to the Bike and Windows Tablet / Laptop
- 2 Switch on the bike (but do not start the bike)

Run the GS911 Application



4 | Select R1200 GS Adventure 2006-2014





- 5 Select Auto Scan from the Menu
- 6 Click the Perform Auto Scan Button
- 7 Wait for the results to be obtained ...
- 8 Scroll down the results and check for faults

Make a note of any codes and check any problems where fault is remaining active.

A few codes seem to be re-appearing but say "The fault is not present now" they only seem to appear when battery is low, alarm goes off, removing sensors or ignition is left on without starting the bike during the service.

- 9 Clear codes
- 10 Set the Service reminder

GS911 Menus:

Special Functions

Service Reminder

Reset Service Reminder to defaults

365 days / 10,000km

- 11 Cycle the Ignition to Update display.
- 12 Switch off the bike
- 13 Disconnect the GS911

END OF SERVICE