Kawasaki 90 GA1-A 90 GA2-A **90 G3SS** 100 GA5-A

RIDER'S HANDBOOK



Foreword

We wish to thank you for your choosing this fine Kawasaki Motorcycle. With the proper care and maintenance you will find your "dynamic partner" will go any time and anywhere. Please read this handbook carefully to obtain instuctions for proper use of your motorcycle, so that you can always enjoy its best performance.

This handbook has been painstakingly reconstructed by D.A.S.ENgineering of Sweden to exactly resemble the original. The variations of fonts, kerning and strange spacing are all fully intentional and follow the original design.

KAWASAKI HEAVY INDUSTRIES, LTD.

Motorcycle Division

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90 G3SS





2. Specifications

Engine	G3SS
Туре	2-stroke, rotary valve, single
	cylinder, air cooled
Displacement	5.43cu-in (89cc.)
Bore X Stroke	1.85X2.04in (47X51.8mm)
Compression Ra.tio	7.0:1
Fuel	Gasoline
Ignition	Fly-wheel magneto
Ignition Timing	20° Before TDC
Starting	Primary Kick
Lubrication	Superlube (Oil injection)
Engine Oil	2-stroke engine oil
Carburetor	Mikuni VM19SC
Spark Plug	NGK B-8HC
Performance	
Max, Torque	7.10ft-lb (0.98kg-m)/7,000rpm
Max. Speed	70mph (113kph)

27°

(75 km/l@40 kph)

GA5-A

6.04cu-in (99cc.) 1.95X2.04in (49.5X51.8mm)

NGK B-8HC

7.95ft-lb (1.10kg-m)/7,000rpm 70mph (113kph) 29°

160mi/gal@25mph (70km/l@40kph)

Transmission

51	5-speed, constant mesh, return shift
Clutch Primary Reduction Ratio Final Reduction Ratio	3.52 (74/21)

Minimurn Turning Radius ... 71.0in (1,800mm) Fuel Consumption 171mi/gal@25mph

Climbing Ability

2.57 (36/14)

G3SS

Transmission Oil SAE 20,30 motor oil (0.74qt) Frame Type Tubular, double cradle Suspension, Front Telescopic fork Rear Swinging arm Tire Size, Front 2.75-18 4PR 2 50-18 4PR Rear 2.75-18 4PR 2.75-18 4PR Brakes Front, Diameter X Width 4.3X1.2in (110X30mm) Rear, Diameter X Width 4.3X1.2in (110X30mm) Braking Distance 21ft/22mph (6.5m/35kph) **Electrical Equipment** Battery 6V 4AH Tail/Brake Lamp 6V, 17/5.3W Dimensions Overall Length 72,0in (1,830mm) Overall Height 40.5in (1,035mm) Ground Clearance 6.5in (160mm) Dry Weight 178lbs (81kg) 174lbs (79kg) Fuel Tank Capacity 2.3 US gal (8.6liters) Oil Tank Capacity 1¹/₄ U.S.qt. (1.2liters)

*Specifications subject to change without notice

Engine	GA-1A	GA2-A
Туре	2-stroke, rotary valve, single	
	cylinder, air cooled	
Displacement	5.43cu-in (89cc.)	
Bore X Stroke	1.85X2.04in (47X51.8mm)	
Compression Ra.tio	7.0:1	
Fuel	Gasoline	
Ignition	Fly-wheel magneto	
Ignition Timing	20° Before TDC	
Starting	Primary Kick	
Lubrication	Superlube (Oil injection)	
Engine Oil	2-stroke engine oil	
Carburetor	Mikuni VM19SC	
Spark Plug	NGK B-7HZ	
Performance		
Max, Torque	7.08ft-lb (0.98kg-m)/7,000rpm	
Max. Speed	62,5mph (100kph)	69mph (110kph)
Climbing Ability	29°	27°
Minimurn Turning Radius	70.9in (1,800mm)	
Fuel Consumption	171mi/gal@25mph	176mi/gal@25mph
1	(75 km/l@40 kph)	(75 km/l@40 kph)
Transmission		
Туре	4-speed, constant mesh,	5-speed, constant mesh,
51	return shift return shift	i ,
Clutch	Wet multi-plate	
Primary Reduction Ratio	3.52 (74/21)	
Final Reduction Ratio	2.79 (39/14)	2.54 (36/14)
i mai recacción Ratio	2.17 (37/17)	2.54 (50/14)

GA-1A

GA2-A

SAE 20-30 motor oil (0.74qt)

Frame

Туре	Tubular, double cradle
Suspension, Front	Telescopic fork
Rear	Swinging arm
Tire Size, Front	2.50-18 4PR
Rear	2.50-18 4PR

Brakes

Front, Diameter X Width	4.3X1.2in (110X30mm)
Rear, Diameter X Width	4.3X1.2in (110X30mm)
Braking Distance	21,3ft/22mph (6.5m/35kph)

Electrical Equipment

Transmission Oil

Battery	6V 4AH
Head Lamp	6V, 25/25W
Tail/Brake Lamp	6V, 5.3/17W

Dimensions

Overall Length	71.3in (1,810mm)
Overall Width	29.1in (740mm)
Overall Height	40.2in (1,020mm)
Wheelbase	45.5in (1,150mm)
Ground Clearance	5.9in (150mm)
Dry Weight	174lbs (79kg)
Fuel Tank Capacity	2.3 US gal (8.6liters)
Oil Tank Capacity	11/4 U.S.qt. (1.2liters)

*Specifications subject to change without notice

3. Stopping Distance and Passing time Information) VEHICLE MINIMUM STOPPING DISTANCE ON DRY PAVEMENT

This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading. The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions. a.nd the information may not be correct under other conditions.

Description of vehicles to which this table applies: 90 Model G3SS.





ACCELERATION AND PASSING ABILITY

THIS FIGURE INDICATES PASSING TIMES AND DISTANCES THAT CAN BE MET OR EXCEEDED BY THE VEHICLES TO WHICH IT APPLIES, IN THE SITUATIONS DIAGRAMMED BELOW.

THE LOW-SPEED PASS ASSUMES AN INITIAL SPEED OF 20 MPH AND A LIMITING SPEED OF 35 MPH. THE HIGH-SPEED PASS ASSUMES IN INITIAL SPEED OF 50 MPH AND A LIMITING SPEED OF 80 MPH.

NOTICE: THE INFORMATION PRESENTED REPRESENTS RESULTS OBTAINABLE BY SKILLED DRIVERS UNDER CONTROLLED ROAD AND VEHICLE CONDITIONS, AND THE INFORMATION MAY NOT BE CORRECT UNDER OTHER CONDITIONS.

DESCRIPTION OF VEHICLES TO WHICH THIS TABLE APPLIES: Model G3SS

SUMMARY TABLE

G3SS

LOW-SPEED PASS....... 440 FEET: 10.3 SECONDS

HIGH-SPEED PASS...... 1615 FEET: 18.6 SECONDS

GRAPHIC DETERMINATION OF PASSING TIME AND DISTANCE



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4. Breaking In

This Kawasaki motorcycle is precision manufactured, but it must be broken in properly for the first 1,000 miles (1,600 km.) to ensure long and troublefree service life.

Superlube Oil Injection System

Your Kawasaki is equipped with Superlube oil injection which eliminates the need to mix oil with the gas. Check the level in the oil tank regularly. Add one quart of oil when the level falls to the line on the tank guage. Never let the tank run dry. Do not disconnect the oil pipe to the engine as this may cause an air lock leading to engine damage.

Use any good quality two (2) cycle oil designated for use in motorcycles or air cooled engines. Racing



type oils are not required tor normal riding conditions. Your dealer can recommenned oils most suitable and available in your area. Avoid use of oils which do not flow readily at low temperatures, as these will not flow to the oil pump in the proper quantity in cold weather.

Do not attempt to adjust the oil pump yourselt. When adjustment is required, consult your Kawasaki dealer.







Adding and Changing Transmission Oil

Check the oil level daily and never let it drop below the mark on oil level gauge (dip stick). Change the transmission oil at 500 miles (800 km), and at every 2,000 miles (3,000 km) after that.

Drain the oil when the engine is warm, and refill with good quality SAE 20or30 motor oil. To fill the transmission, remove the oil filler cap and fill until the oil level is between the two lines marked on the level gauge, when the gauge is screwed in.

Do Not "Race" Engine

Do not race the engine or run at high revs immediately after starting. Over revving the engine in neutral can cause severe engine damage.

Do Not Overspeed

Ride the motorcycle at 35 mph (55 kph or slower) the first 300 mi (500 km). Even after that, do not strain the engine by running it at high speeds. In particular. be careful not to run the engine at high speeds with the gears in neutral, as this overloads turning parts and can cause defective engine operation. Do not brake the motorcycle suddenly, do not strain the engine and do not slip the clutch (half clutch).

Note: Allow engine to warm up thoroughly at idling speed for $2 \sim 3$ minutes before riding, to let the oil reach the engine.



Fig. 4



5. Controls

Fuel Tap

Fuel tap lever position "0" is closed, "1 " is open, and "2" opens a reserve supply of about I/8 US-gal (0.5 liter).

Every 2.000 miles (3,000 km), reove the bowl from the bottom of the fuel tap, clean the fuel tap filter and flush the gas tank.

Starter Lever

Use the starter lever when the engine is cold. Push the lever all the way to the left to supply an extra rich fuel air mixture, keep the throttle closed and kick the starter pedal through smartly. Be sure to pull the starter lever back to the right to its normal positon after the engine warms up.





Clutch Lever

The clutch lever operates the clutch. When the lever is pulled in, engine power is not tramitted to the rear wheel. When the Iever is released, power is supplied to the rear wheel and the motorcycle moves. Pull in the lever quickly and release it slowly.

Gear Change Pedal

Transmission gears are changed by kicking up the gear change pedal.

GA1-A

The 4-speed transmission is of rotary shift type, so the gears are changed with eitlier the front or rear of the gear shift pedal. Step on the front of the pedal to shift into a higher gear, and on the rear of the pedal to shift into a lower gear. When the grears are in neutral (between low and top gear), engine power cannot be transmitted to the rear wheel and the green neutral lamp in the speedometer lights.

Gear sequence is:

neutral (green lamp on), first, second, third, fourth, neutral (green lamp on), etc.







GA2-A, G3SS, GA5-A

The 5-speed transmission is a stopper type, return change. Neutral is located at the lowest position, so the gears can be shifted up by lifting the pedal up with the toe, and shifted down into a lower gear by stepping on the pedal. When the gears are in neutral, engine power cannot be transmitted to the rear wheel and the green neutral lamp in the speedometer lights. Gear sequence is as follows:

Neutral (green lamp on), first, second, third, fourth, fifth.

Brakes

The motorcycle will stop smoothly and safely when both front and rear brakes are applied at the same time. The rear brake operates when the brake pedal is pushed by the right foot. The front brake operates when the brake lever on the handlebar is pulled in with the right hand.

6. Starting the Engine



Fig. 9



Starting is by the primary kick system, so the engine can be started by pulling up the clutch lever and kicking the pedal, regardless of gear position.

Cold Engine

This Kawasaki motorcycle has carburetor starter system for easy starting even when cold.

- 1. Open fuel cock. If fuel does not flow to carburetor, turn fuel cock lever to open reserve supply.
- 2. Push carburetor starter lever all the way to the left.
- 3. Close throttle completely. If the throttle is open even a little, the carburetor starter system will not work effectively, and the engine will be hard to start.
- 4. Insert key in ignition switch and turn it on.
- 5. Squeeze the clutch lever.
- 6. Kick the starter pedal down smartly.
- 7. After the engine starts, twist the throttle grip open just a little. When engine speed increases, indicating the engine has warmed up, return the starter lever to its normal position. If the starter lever is not returned to its normal position, too rich a mixture is supplied to the engine, causing fouled spark plug and defective engine operation.

Warm Engine

Do not use the starter lever when the engine is warm, or the engine may be flooded or the spark plug fouled.

- 1. Open fuel cock.
- 2. Insert key in ignition switch and turn it on.
- 3. Squeeze the clutch lever.
- 4. Crack the throttle open a little, about $0 \sim 1/4$ turn.
- 5. Kick the starter pedal down smartly, and the engine will start.
- Note: At night, start the engine first and then turn on the head lamp after the engine is running.



Fig. 11

7. Parking

Shift the gears into neutral and stop the engine. Rest the motorcycle on either the side stand or the main stand. Close the fuel cock. Remove the key from the ignition switch. Lock the steering lock.



Fig. 12



Fig. 13

8. Maintenance and Adjustments

Electrical System

Adjusting Ignition Timing

Rotate flywheel (A) until mark (B) on the outside of the flywheel coincides with mark (C) on the crankcase. Loosen fitting screw (D) and move the contact breaker assembly to the right or left by turning a screwdriver in the slots on the contact breaker base (F) and on the contact breaker assembly (G), until the contact points are just about to open.

Tighten mounting screw (D) securely. After adjusting, turn the engine in the running direction with the ignition switch turned off, by using the kick pedal, or a wrench on the nut on the end of the crankshaft. The contact points should just begin to open when mark (B) on the outside of the flywheel coincides with mark (C) on the crankcase (20° before top dead center).



Fig. 14

Spark Plug

Use only a NGK B-7HZ spark plug or a plug of equivalent heat range and reach, as the spark plug and its condition directly affect engine performance.

It is important that the spark plug be kept in good condition. The spark plug electrodes are subjected to extremcly high temperatures and wear down, necessitating periodic adjustment. Check the plug gap frequently and set it to 0.024" (0.6mm). A spark plug with a gap too large or too small will cause hard starting, misfiring, etc.

Clean the spark plug with a wire or brush and wash with gasoline if carbon accumulates on the spark plug electrodes. Dry it completely and insert the spark plug by screwing it down hand tight, then tightening it with a plug wrench. Be sure to insert a spark plug gasket.



Fig. 15

Battery

The battery is important as the electrical source for starting and electrical equipment. If the battery is not given proper care, it will not give satisfactory performance and its life will be short. Be sure to give the battery frequent inspections and proper care at all times.

Keep the solution level above the lower line printed on the battery. If the solution level is low, add distilled water only, up to the upper line. Do not add diluted sulphuric acid. Make sure the air vent is kept open. Do not spill the acid. Keep the battery clean. Completely charge the battery before installing it.

If the motorcycle is not ridden for more than one month, charge the battery once a month.

Be sure the positive and negative terminals are connected to the correct wires. Tighten terminal nuts and bolts firmly.



Fig. 16



Fig. 17

Head Lamp

The 6V, 25/25W head lamp is turned on when the ignition switch key is turned to position "2" for night riding. The head lamp is dimmed with the dimmer switch mounted on the left handlebar.

Left or right adjustment is performed by turning the adjuster screw in the front of the headlight.

Adjust the beam lower or higher by first loosening the mounting bolts on the sides of the headlight, and moving the light by hand. After adjustment is complete, be sure to retighten the bolts.



Fig. 18



Fig. 19

Carburetor

The carburetor atomizes the gasoline, mixes it with the proper amount of air and supplies it to the engine. To achieve correct carburetor settings, adjust it only when the engine is completely warmed up.

The standard setting of the pilot air screw, is $1^{1/2}$ turns backed out from full in. Standard idle speed is $1,300 \sim 1,500$ rpm. To adjust idling speed. turn the throttle stop screw out to increase speed, and turn in it to decrease rpm.

As incorrect adjustment can cause serious problems, it is best to have your Kawasaki Dealer perform any neccssary adjustment.

Control Cable

The throttle cable must be synchronized with the oil pump cable, so that the throttle valve of the carburetor opens in accordance with oil pump lever opening.

Do not adjust the throttle cable adjusters on the mixing chamber top alone, because since the throttle cable must be synchronized with the oil pump cable, whenever one cable is





adjusted the other must be adjusted also, to maintain the correct oil flow rate for each degree of throttle opening.

- 1. Adjust engine idling speed. $(1,300 \sim 1,500 \text{ rpm})$
- 2. By turning adjusting bolt (a) on the control cable, give enough play to the cable so that the throttle grip turns loose. Take up all oil pump cable play by turning the oil pump cable adjuster (f), with the mark on the oil pump lever aligned to that on the stopper.
- 4. Eliminate throttle cable play by turning the cable adjuster(d) on the carburetor. Be sure not to change the idling speed when adjusting the cable.
- Note: (d), (c) and (e) are the lock nuts of the adjusters.
 - After step 3 and step 4, check the control cable to see that both the throttle and the oil pump cables are pulled up simultaneously.
 - 5. Finally, adjust the control cable play by turning the adjusting bolt and taking up throttle grip play.



Fig. 21





Brakes

Correct brake adjustment is most important for safe riding. Always be sure to check the brakes before riding. Brake play increases gradually with wear, so adjust it regularly.

Rear Brake

Adjust brake pedal play to $1 \sim 1^{1/4}$ inches (25 ~ 35 mm) with the brake rod adjusting nut.

Check the brake lamp switch adjustment, and adjust it if necessary.



Fig. 23



Fig. 24

Front Brake

Using the adjusting nut on the front brake cable, adjust the brake so that when it is fully applied, there is $2 \sim 2^{1/2}$ inches (55 ~ 65 mm) space left between the throttle grip and the brake lever, measured near the end of the lever. Use the hand adjuster at the brake lever for minor adjustment later.

Tires

skid easily.

Tire air pressure has a large effect on riding comfort, safety, handling, and the life of the motorcycle and the tires. Check the pressure before riding. Standard air pressure for the front tire is 22 psi (1.6 kg/cm^2) and for the rear tire 28 psi (2.0 kg/cm^2). Insufficient tire pressure gives a soft ride but wears the sidewalls of the tires rapidly, and sometimes the tire slips on the rim and tears out the inner tube valve stem. Excessive tire pressure makes riding uncomfortable, increases vibrations, and wears the center of the tread rapidly. An over-inflated tire also tends to



Fig. 25

Fig. 26



Clutch

The clutch friction plates wear and the clutch cable stretches over a long period of riding, so it is necessary to adjust the clutch release mechanism and clutch cable every 2,000 milies (3,000km). Caution: Improper adjustment can cause erratic gear shifting, clutch slippage, or incomplete disengagement (cycle creeps forward while stopped).

- ☆ Loosen the clutch release lever lock nut and back out the adjusting screw one or two turns to where the clutch lever turns freely.
- \Rightarrow Turn the clutch cable adjuster and set the release lever at an 80° angle with the cable.
- ☆ Screw the clutch release lever adjusting screw back in until you feel pressure, and lock it there.
- Adjust the clutch (hand) lever with the cable adjuster for 1/16 to 1/8 inch (2-3 mm) play before you start to feel clutch spring tension.
- ☆ Use the small hand adjuster for minor corrections while riding.
 ☆ Tighten all lock nuts.









Drive Chain

If the drive chain is not properly lubricated, the links become stiff, resulting in rapid wear of sprockets and drive chain or power loss, as well as straining the engine. Inspect and lubricate the chain periodically.

There should be about 20 mm play (just under 1 inch), measured midway between the sprockets, when the rear wheel is turned arouned to where the chain is tightest.

To adjust chain tension, first loosen axle, axle sleeve, and torque link nuts, and then turn the chain adjusters. Be sure the chain adjusters on each side are moved the same amount. After chain adjustment, check the rear brake and brake lamp adjustments, which are changed by chain adjustment.

Caution: After adjustment be sure to tighten the axle nut, axle sleeve nut torque link nut.

Fig. 30









A clogged air cleaner restricts the engine's air intake, decreasing gas mileage and engine power, and causing the spark plug to foul.

The filter element must be cleaned at least every 2,000 miles (3,000 km). In dusty areas, the element should be cleaned every 500 miles (800 km) or less. After riding through rain or on muddy roads, the element should be cleaned immediately.

To remove the G3SS, GA5-A element for cleaning, loosen the hose clamp, and then unhook the body and pull out the element.

To remove the GA1-A, GA2-A element for cleaning, take out the four bolts and remove the cover, then pull out the element.

Wash the element, housing and felt pieces with gasoline or solvent and blow them dry. After cleaning, dampen it with a small amount of gasoline/oil mixture (about a 20:1 mixture of gasoline and SAE 30 motor oil).

Replace the element after 6,000 miles (10,000 km), after cleaning it 5 times, or if it is damaged.

Note: When replacing the element, make sure the sponge fits onto the frame well, and there is no place for unfilted air to enter and wear down the engine.





Fig. 33



Muffler

Remove screw (A) and pull out the baffle tube (B).

Clean it with a wire brush and by striking it gently, and wash it with gasoline. If the carbon deposits are too heavy to remove in this manner, burn the carbon off with a torch or by placing the baffle tube in a fire.

Fig. 34

9. Tool Kit

① Tool Bag.

- ^② 17 X 19 mm Open End Wrench.
- ③ 10 X 14 mm Open End Wrench.
- ④ 10 X 13 mm Open End Wrench.
- Screwdriver Grip.
- © Combination Screwdriver / #2 Phillips Screwsirver.
- ⑦ #3 Phillips Screwdriver.
- Spark Plug Wrench.

10. Daily Checks



Fig. 35

Front Brake	With brake fully applied, $2 \sim 2^{1/2}$ inches (55 ~ 65 mm) space left between brake lever and throttle grip.
Rear Brake	Brake pedal play $1 \sim 1^{1/2}$ inch (25 ~ 35 mm)
Fuel Tank	Capacity 2.3 US gal (8.6 liters)
Oil Tank	Capacity 1.3 US qt (1.2 liters)
Transmission Oil	Capacity 0.74 qt (0.7 liters)
Front Tire	Air pressure 22 Psi (1.55 kg/cm2)
Rear Tire	Air pressure 28 Psi (1.97 kg/cm2)
Electrical Equipment	Check to see that head lamp, tail lamp brake lamp and
	horn work.
	Wash, clean and wipe with oily cloth to prevent rusting. Clutch lever play $1/16 \sim 1/8$ inch (2 ~ 3 mm)

11. Periodical Inspection Chart

Item	iles (km)	500 (800)	1,000 (1,600)	2,000 (3,000)	Every 2,000 (3,000)
Change Transmission Oil		0		0	0
Clean Air Cleaner				0	0
Tighten Cylinder Head Bolts		0		0	0
Clean Spark Plug, Check Gap		0		0	0
Check Ignition timing		0		0	0
Inspect Drive Chain		0	0	0	0
Check, Adjust Brakes		0	0	0	0
Tighten Nuts and Bolts		0	0	0	0
Grease Motorcycle			Ō	0	0
Clean Fuel Tap Strainer		0	0	0	0
Check Battery Voltage		0	Ō	0	0
Replenish Battery Solution			0	0	0
Remove Wheels, Clean Brakes				0	0
Clean Exhaust Pipe and Muffler				0	0
Wash, Lubricate Drive Chain		0		0	0
Check, Adiust Contact Points				0	0
Check, Tighten Spokes		0		0	0

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12.Wiring Diagram 90 G3SS



(054-3)

European Model



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Pack

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