# Hyosung - gf125

HYOSUNG MOTORS & MACHINERY INC.
SERVICE MANUAL
SERVICE MANUAL
99000-94200
GF125


FOREWORD
The HYOSUNG GF 125 was designed to offer superior performance through light weight design and four stroke power. The new GF 125 represents another major advance by HYOSUNG in four stroke motorcycles.
This service manual has been produced primarily for experienced mechanics whose job is to inspect, adjust, repair and service HYOSUNG Motorcycles. Apprentice mechanics and do it yourself mechanics will also find this manual to be an extremely useful guide.
Model GF 125 manufactured to standard specifications is the main subject matter of this manual. However, the GF 125 machines distributed in your country might differ in minor respects from the standard-specification GF 125 and, if they do, it is because some minor modifications (Which are of no consequence in most cases as far as servicing is concerned) had to be made to comply with the statutory requirements of your country.
This manual contains up-to-date information at the time of its issue. Later made modifications and changes will be explained to each HYOSUNG distributor in respective markets, to whom you are requested to make query about updated information, if any.

GROUP INDEX
 
GENERAL INFORMATION
 
1-1 GENERAL INFORMATION
SERIAL NUMBER LOCATIONS

The frame serial number  is stamped on the rear end of the frame. The engine serial number  is located on the crankcase. These numbers are required especially for registering the machine and ordering spare parts.

BREAK-IN PROCEDURE

During manufacture only the best possible materials are used and all machined parts are finished to a very high standard but it is still necessary to allow the moving parts to BREAK-IN before subjecting the engine to maximum stresses. The future performance and reliability of the engine depends on the care and restraint exercised during its early life. The general rules are as follows:

ENGINE OIL

Be sure that the engine-oil you use comes under API classification of SF or SG and that its viscosity rating is SAE 10W-40. If SAE 10w-40 motor oil is not available, select the oil viscosity according to the following chart.

FRONT-FORK OIL

FUEL AND OIL

RECOMMENDATIONS

FUEL

Gasoline used should be graded 85-95 octane or higher.

An unleaded or low-lead gasoline type is recommended.

NOTE:

Unleaded and low-lead gasoline will extend spark plug life.

TELLUS #22

Initial 800km

Up to 1,600km

Over 1,600km

Below 4,500r/min

Below 5,500r/min

Below 10,500r/min

Keep to these break-in engine speed limits:

Upon reaching an odometer reading of 1,600km you can subject the motorcycle to full throttle operation. However, do not exceed 10,500r/min at any time.

Do not maintain constant engine speed for an extended time period during any portion of the break-in. Try to vary the throttle position.

SAE

40

30

20W/50

10W/50

10W/30

20W

10W

-20

-4

-10

140

32

10
50
20
68
30
86
40
104
Temp.

GENERAL INFORMATION 1-2
SPECIAL FEATURES
HYOSUNG GF 125 is an improved model that has been revised from 2 valve engine of GF 125 to 4 valve engine and has much more developed features as follows.
1. IMPROVEMENT OF ENGINE POWER AT MIDDLE AND LOW SPEEDS
In order to make long distance driving more comfortable and easier which is the best point of American Style, the VALVE TIMING, multi-valve from 2 valve to 4 valve and the proper design of narrower angle VALVE port are done without losing TORQUE at high speeds.
2. LESS VIBRATION AND NOISE
In order to meet customer's demands for less vibration, the VIBRATION with the body is prevented by making the engine strength higher and natural frequency high order AND the previous SYSTEM which prevents vibration transmissibility is get together. For less noise, the INTAKE & EXHAUST system and VALVE TRAIN system are redesigned in order to satisfy 71 db, the strict '96 KOREA NOISE REGULATION.
3. COMFORTABLE SEATING
The seat is made out of two different hardness FOAM URETHANE in order to absorb shock which makes seating more comfortable.
THE TECHNICAL FEATURES
1. CYLINDER HEAD
The best combustion efficiency is done by the 4 VALVE seat system's connecting TWO IN ONE HOLE INTAKE AND EXHAUST to SPARK PLUG in Pentroof combustion chamber casted at the low pressure.
The silent chain is more closely united and the cylinder head wall is thickened more for decreasing chain noise.
By choosing ALUMINUM forging, HOLDER gets lighter and stronger.
2. PISTON, CONNECTING ROD and CAM CHAIN
PISTON, high tension HI-SILICON, AC8A, is FLAT type, HEAD, and T-type, SHORT SKIRT which is 57, suitable for high speeds and lightened for less vibration.
The part of CONNECTING ROD's small hole is 15, the PIN SIZE of large hole is 28 for enduring high engine power and PITCH is 99.8.
CAM CHAIN is LINK PITCH 6.350(1/4")'s endless type and gets TIMING and less noise by adopting Borg Warner 92RH.

1-3 GENERAL INFORMATION
3. CLUTCH MISSION
The Primary Gear Ratio is improved from 3.47 to 3.50 in order to increase rotation.
For improving CLUTCH durability while long distance driving, CLUTCH DAMPER is changed from rubber to steel Spring type.
4. VALVE TRAIN

The maximum power appears at 8500rpm, so that TORQUE is good enough to have a long distance driving or downtown driving. The valve angle is 25° (IN) and 28° (EX) which are much narrower angles for ROCKER ARM 4 VALVE and TORQUE(1.02m) is achieved by improving VOLUME EFFICIENCY. The technical design is done through the enough simulation by the design SOFTWARE which our company have kept, in order to not making trouble like JUMPING or SURGING.

5. CAM SHAFT, LOCK ARM and VALVE

The material of CAM is CHILLED FC, whose durability and safety is high.

For improving acceleration, the inside of Cam Shaft is designed empty.

For improving durability, BALL BEARING TYPE for CAM SHAFT is adopted and LOCK ARM is surfaced with HARD CROME COATING and LUBRITE. For preventing the touching noise, the contacted SPRING CAM is adopted. The Valve (IN 22, EX 19) is surfaced with TUFTLITE. The left side of VALVE and TAPPET are surfaced with STELLITE, especially the surface hardness is over HRC50 by surfacing STELLITE NO 1, so that TAPPET's durability is improved by preventing wearing.

25°
IN.
22 19
EX.
28°



GENERAL INFORMATION 1-4

IGNITION SYSTEM

DESCRIPTION

The GF 125 Engine is equipped with a new type ignition system. This new system further reduces timing fluctuations. It has an ignition timing control circuit which accurately controls the advance curve and maintains consistent timing independent of high RPM fluctuation, magnetic force, temperature, and air gap.

ADVANTAGES OF CAPACITOR DISCHARGE IGNITION SYSTEM

- Trouble free operation due to elimination of contact breaker points which can become contaminated.
- Ignition timing is maintained properly at all times and requires no maintenance.
- Free from arcing and provides the ignition coil with stable secondary voltage.
- Excellent vibration and moisture resistance.

OPERATION

When the magneto rotor rotates, an electric current is generated in the power source coil(L), and this charges the capacitor(C1) via (D1).

On the other hand, when the rotor tip on the magneto rotor passes the pick-up coil, the currents(P1) and (P2) are generated, they flow to the ignition timing control circuit, and they are converted into one ignition signal. This signal is sent to the (SCR), the (SCR) becomes ON, the circuit(C1) (SCR) (lg1) is formed, and as the electric energy stored in capacitor (C1) is discharged instantly, a high voltage is induced in the ignition secondary coil(lg2), and a spark crosses over the spark plug gap.

When the engine is running slowly (N1r/min or less Fig. 3), control by the ignition timing control circuit is executed so that the ignition signal is generated at the time (Fig. 2) when the current (P1) is generated and is sent to the (SCR). When the engine speed increases (N1 to N2 r/min), control is executed so that the ignition signal is generated between (P1) and (P1) according to the engine speed. At this time, the advance angle is (1).

At the time of high engine speed (N2 r/min and over), control is executed so that the ignition signal is generated at the time when (P2) is generated. AT this time, this advance angle becomes(2).

MAGNETO
Power Source Coil
Rotor tip
P1
P2
D1 C1
SCR
lg1
lg2
Pick-up Coil
IGNITION COIL
SPARK PLUG CDI UNIT
IGNITION TIMING
CONTROL CIRCUIT
Fig. 1

1-5 GENERAL INFORMATION
P2
P2
N2 N1
P2
P2 P1
P1
P1
(B.T.D.C.)
P1
1
2
2
2

360°
Pick-up Coil
Current
Between N1 and N2
Over N2
Engine speed(r/min)
Fig. 2
Fig. 3
Signal current to SCR
Engine speed Below N1