SUZUKI

FA50

SERVICE MANUAL

SR-0570
(英)E-03

FOREWORD

This service manual has been specially prepared to provide all the necessary information for the proper maintenance and repair of the FA50. The contents have been simplified so that FA50 owners, as well as experienced mechanics, may fully utilize this manual.

The FA50 is a new type of motorcycle that has many special features such as:

1) *Easy to ride operation*
2) *Easy, smooth handling due to light weight and size*
3) *Simple to maintain and service*
4) *Technical features such as PEI ignition and automatic clutch*

The FA50 fits the needs of a wide variety of motorcycle users. Those who will be servicing this motorcycle should carefully review this manual before performing any repairs or services.

SUZUKI MOTOR CO., LTD.
Service Department
Overseas Operations Division

GROUP INDEX

GENERAL INFORMATION

CONTENTS

1

MODEL IDENTIFICATION

RIGHT SIDE VIEW

FRAME NUMBER

The frame serial number is stamped on the right side of the steering head pipe.

LEFT SIDE VIEW

ENGINE NUMBER

The engine serial number is located on the left side of the crankcase.

These numbers are required especially for registering the machine and ordering the spare parts.

SPECIFICATIONS

DIMENSIONS AND WEIGHT

Overall length	1 585 mm (62.4 in)
Overall width	670 mm (26.4 in)
Overall height	970 mm (38.2 in)
Wheelbase	1 040 mm (40.2 in)
Ground clearance	120 mm (4.7 in)
Dry mass (weight)	45 kg (99 lbs)

ENGINE

Type	Two-stroke, air cooled
Intake system	Reed valve
Number of cylinder	1
Bore	41.0 mm (1.614 in)
Stroke	37.4 mm (1.472 in)
Piston displacement	49 cm³ (3.0 cu.in)
Corrected compression ratio	6.5 : 1
Carburetor	MIKUNI VM12SH, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	SUZUKI "CCI"

TRANSMISSION

Clutch	Wet shoe, automatic, centrifugal type
Transmission	1-speed
Gearshift pattern	Automatic type
Primary reduction	1.000
Final reduction	5.564
(chain)	2.384 (31/13)
(gear)	2.333 (56/24)
Drive chain	DAIDO D.I.D. 270H, 64 links

CHASSIS

Front suspension	Telescopic
Rear suspension	Swinging arm, oil dampened
Steering angle	45° (right & left)
Caster	65°00'
Trail	70 mm (2.76 in)
Turning radius	1.4 m (4.6 ft)
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	2.25-14 4PR
Rear tire size	2.25-14 4PR
Front tire pressure	150 kPa (1.50 kg/cm^2, 21 psi) (Normal solo riding)
Rear tire pressure	200 kPa (2.00 kg/cm^2, 28 psi) (Normal solo riding)

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	25° B.T.D.C. at 4 000 rpm
Spark plug	NGK BP4HA or NIPPON DENSO W14FP-UL
Battery	6V 7.2 kC (2 Ah)/10 HR
Generator	Flywheel magneto
Fuse	10A
Headlight	6V 20/20W
Tail/Brake light	6V 5.3/17W (3/21 cp)
High beam indicator light	6V 1.7W
Speedometer light	6V 1.5W

CAPACITIES

Fuel tank including reserve	2.5 L (0.66 US gal)
reserve	0.4 L (0.4 US qt)
Engine oil tank	0.7 L (0.7 US qt)
Transmission oil	500 ml (0.5 US qt)

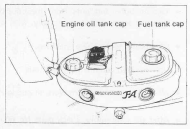
* These specifications are subject to change without notice.

FUEL AND OIL RECOMMENDATION

Be sure to use the specified fuel and oils. The following are the specifications:

FUEL

Use only unleaded or low-lead type* gasoline of at least 85 – 95 pump octane ($\frac{R + M}{2}$ method) or 89 octane or higher rated by the Research method.

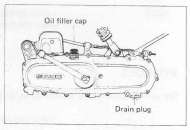


ENGINE OIL

For the SUZUKI CCI system, use of SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT is highly recommended, but if it is not available, a good quality synthetic based 2-cycle oil should be used.

TRANSMISSION OIL

Use a good quality SAE 20W/40 multi-grade motor oil.



GENERAL NOTES AND PRECAUTIONS

Observe the following items without fail when disassembling and reassembling motorcycles.

- Be sure to replace packings, gaskets, O rings, circlips and cotter pins with new ones.
- Tighten bolts and nuts from the ones of larger diameter to those of smaller diameter, and from inside to out-side diagonally, with specified tightening torque.
- Use special tools where specified.
- Use specified genuine parts and oils.
- When 2 persons perform work in cooperation, pay attention to the safety of each other.
- After the reassembly, check parts for tightening condition and operation.
- Treat gasoline, which is extremely flammable and highly explosive, with greatest care. Never use gasoline as cleaning solvent.

Warning, caution and note are included in this manual occasionally, describing the following contents.

WARNING ..... When personal safety of the rider is involved, disregard of the information could result in his injury.

CAUTION ..... For the protection of the motorcycle, the instruction or rule must be strictly adhered to.

NOTE ..... Advice calculated to facilitate the use of the motorcycle is given under this heading.

SYMBOLS

The symbols used in this manual are as follows.

: Tightening torque

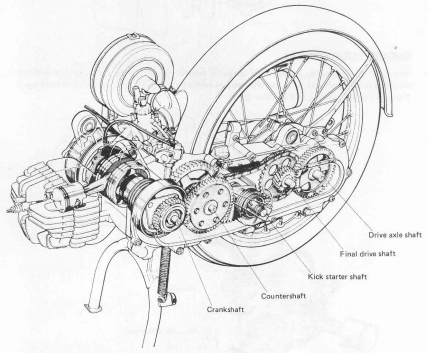
OIL : Oil

GREASE : Grease

TECHNICAL FEATURES

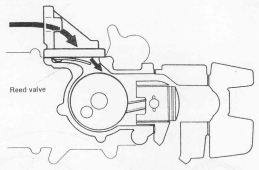
DESCRIPTION

The FA50 has a 49 cc 2-cycle engine with a reed valve. The simple construction and rational design of the engine has minimized the number of inspection items, thus allowing easy inspection and almost maintenance-free operation. This provides a unique motorcycle, with a long enjoyable life, free from troubles.



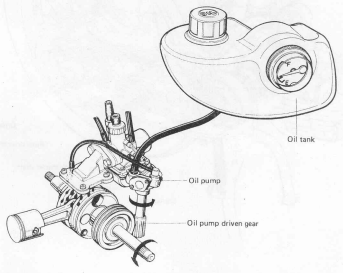
REED VALVE

A reed valve is used in the intake system. The reed valve has thin, flexible steel pieces and are fitted into the top of the crankcase. As the piston moves up and down, the pressure in the crankcase alternately changes to negative and positive, thus causing the reed valve to open and close. The reed valve timing and opening vary depending on the engine speed and throttle opening. In other words, it can be said that the intake timing is ideally matched to the operating condition of the engine.



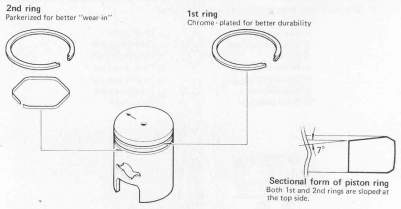
ENGINE LUBRICATION

Engine oil is supplied by means of an oil pump which is driven by the crankshaft through the oil pump driven shaft and oil pump drive gear mounted on the crankshaft. Engine oil is discharged from the pump according to the engine speed.



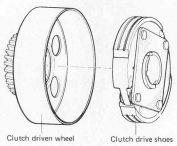
PISTON AND PISTON RING

Both 1st and 2nd piston rings are of keystone type, and an expander ring is with the 2nd ring. The keystone ring is less sticking and has excellent durability. The expander ring absorbs the noise generated by the piston sliding against the cylinder wall by means of its spring tension, thus reducing overall noise.



CLUTCH

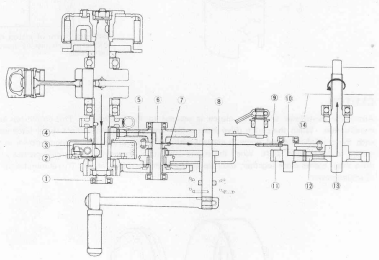
Automatic centrifugal shoe type clutch is secured to the crankshaft. This clutch has simple construction. When the clutch drive shoes, which are thrown apart by centrifugal force varying with the crankshaft speed, come in contact with the clutch driven wheel, engine power is transmitted to the counter shaft. When the engine speed falls, the centrifugal force decreases and the drive shoes comes close together, thus separating from the driven wheel. This eliminates the flow of engine power.



POWER TRANSMISSION

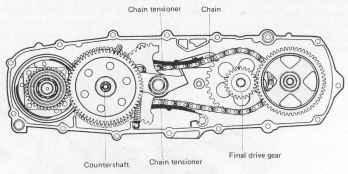
This motorcycle is equipped with an automatic one speed transmission. If the engine revolution is increased, the clutch ③ is connected and the power of the crankshaft ① is transmitted to the counter shaft ⑥. Power of the countershaft is transmitted to the final drive shaft ⑩ by means of the drive chain ⑧. Power of the final drive shaft is transmitted to the drive axle shaft ⑬ and at the same time, the rear wheel ⑭ is rotated.

① Crankshaft
② Clutch drive shoes
③ Clutch
④ Primary drive gear
⑤ Primary driven gear
⑥ Countershaft
⑦ Drive sprocket
⑧ Drive chain
⑨ Driven sprocket
⑩ Final drive shaft
⑪ Final drive gear
⑫ Final driven gear
⑬ Drive axle shaft
⑭ Rear wheel



DRIVE CHAIN

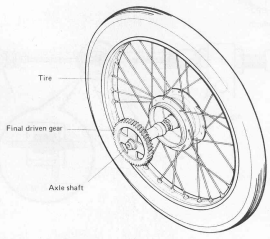
Power is transmitted from the countershaft to the final drive shaft through a drive chain. The drive chain is maintained at the proper tension by the chain tensioners provided for the upper and lower parts of the chain and is immersed in transmission oil – oil bath type – ensuring excellent durability.



FINAL DRIVE

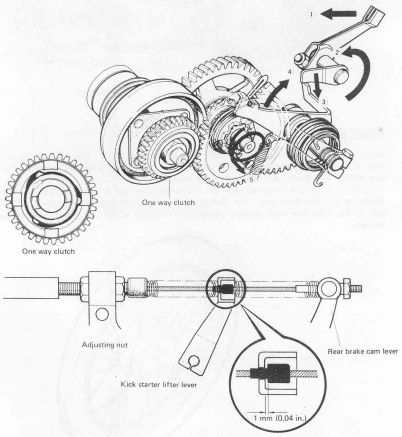
Power transmitted to the final drive shaft through the drive chain. The driven sprocket and final drive gear are press-fitted to the final drive shaft. The speed is reduced by the final drive gear and the final driven gear mounted on the drive axle shaft.

The drive axle shaft is integrated with the final driven gear, and it rotates at a speed reduced finally by the final drive gear. The shaft is installed in the rear part of the crankcase. Almost half of the drive axle shaft projects outside and is splined to the rear wheel, thus causing it to turn.



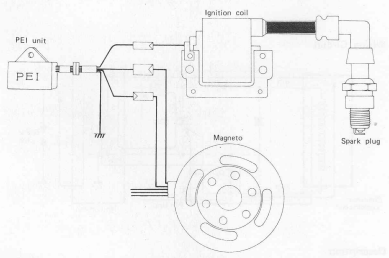
KICK STARTER

When the brake lever is squeezed, the kick starter lifter lever is actuated (1), the kick starter lifter shaft rotates (2) and the kick starter lifter moves downward (3). By the movement of the kick starter lifter, the kick starter guide is pushed and the guide end is raised. Keeping this condition, when the kick lever is depressed (3), the kick starter is turned by the kick starter drive gear (4). As a result, the kick starter moves to the left side of the kick idle gear (5) while being turned by the kick starter gear and meshes with the kick idle gear. The kick idle gear rotates and makes the crankshaft turn. The one-way clutch as shown in the figure below is incorporated in the kick idle gear. When the engine is started up, the engine revolution is cut at the one-way clutch and it does not rotate the kick idle gear.



"PEI" SYSTEM

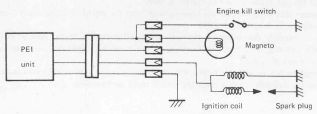
In the FA50 ignition system, the PEI system is used.
The PEI system uses a magneto as the power source, and the capacitor (condenser) momentarily stores a charge up to hundreds of volts.
The charge is instantly discharged, at the specified ignition timing, to the ignition coil primary winding, thus inducing a high surge of voltage in the secondary winding. As a result, a spark occurs at the spark plug gap.
The PEI magneto has no breaker points and therefore it is free from mechanical trouble. This ensures a stabler secondary high voltage and better spark performance.



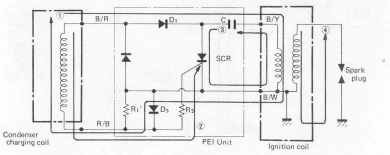
Features of "PEI" System

1. Spark plug deposits are minimized as high voltage spark is produced.
2. Disuse of contact points means no dust trouble. Contact points become worn by dust.
3. Original engine performance is kept as ignition timing is always correct.
4. Running cost is reduced as "PEI" system has no mechanical parts and therefore requires no adjustment or replacement.

Connecting Diagram



Wiring Circuit



Description

1. As the magneto turns, the voltage generated by the condenser charging coil is charged to the condenser through the following circuit:
   Condenser charging coil → Diode D_1 → Condenser C → Ignition coil primary winding → Diode D_3 → Condenser charging coil.
2. When the rotor turns 180°, the polarity of the red/black terminal becomes positive (+) and the generated voltage, which is divided by R_1, is applied through R_2 to the SCR gate. When this voltage arrives at the SCR gate, it makes SCR conduct (turned on).
3. When SCR closes the circuit, the electrical charge stored in the condenser is rapidly discharged through the following circuit:
   Condenser C → SCR → Ignition coil primary winding → Condenser C.
4. In this way, a high surge of voltage quickly builds up in the secondary winding, thus causing a good spark to jump across the spark plug gap.

NOTE:
In case of PEI, two sparks occur each crankshaft rotation at approximately TDC and BDC.

INSPECTION AND ADJUSTMENT

CONTENTS

2

PERIODIC MAINTENANCE SCHEDULE

Vehicles should be inspected after a certain period of running for wear of parts, carbon deposits, elongated cables, etc. Inspections should be made periodically and defects should be repaired or adjusted beforehand to prevent trouble and prolong the motorcycle's service life.
Inspect and adjust the vehicle as indicated below.

NOTE:
More frequent maintenance may be performed on motorcycles that are used in an extreme severe condition.

PERIODIC MAINTENANCE CHART

Interval		Initial	Every	Every
Item	Km	1 000	3 000	6 000
	Miles	600	2 000	4 000
	Month	2	6	12
Air cleaner element		–	Wash and clean	–
Battery		Check specific gravity and service electrolyte solution	Check S.G. and service electrolyte solution	–
Brakes		Adjust play	Adjust play	–
Brake shoes		–	Check wear	–
Carburetor		Adjust idle rpm	Adjust idle rpm	Overhaul and clean
Cylinder head and cylinder		Retorque head nuts and exhaust pipe bolts	Retorque head nuts and exhaust pipe bolts	Remove carbon
Chassis bolts and nuts		Retorque	Retorque	–
Fuel line		Replace every 2 years		
Oil pump		Check operation	Check operation	–
Spark plug		Clean	Clean and adjust gap	Replace
Steering		Check play	Check play	–
Throttle cable		Adjust play	Adjust play	–
Tire		Check tire pressure	Check tire pressure and tread wear	–
Transmission oil		Change	Change	–

LUBRICATION CHART

Rotating and rubbing parts must be lubricated periodically. Insufficient lubrication will cause rapid wear and severe damage may result.
Lubricate the following parts periodically.

Interval		Every	Every
Item	Km	3 000	6 000
	Mile	2 000	4 000
	Month	6	12
Brake cables		Motor oil	–
Brake cam shaft		–	Grease
Choke cable		Motor oil	–
Speedometer gear		–	Grease
Speedometer cable		–	Grease
Throttle cable		Motor oil	–

WARNING:
Be careful not to apply too much grease to the brake cam shafts. If grease gets on the linings, brake slippage will result.

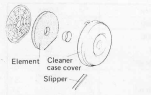
Lubricate exposed parts which are subject to rust, with either motor oil or grease whenever the motorcycle has been operated under wet or rainy conditions.

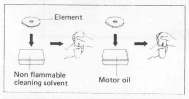
Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.

MAINTENANCE PROCEDURE

AIR CLEANER

Clean at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)





CAUTION:

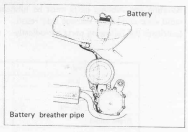
- **Before and during the cleaning operation, examine the element to see if it is torn. A torn element must be replaced.**
- **Be sure to position the element snugly and correctly, so that no incoming air will bypass it. Remember, rapid wear of piston rings and cylinder bore is often caused by a defective or poorly fitted element.**

BATTERY

Check at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)

Electrolyte for specific gravity	1.28 at 20°C (68°F)

- Check to be sure that the vent pipe is secure and routed properly.
- Add distilled water, as necessary, to keep the surface of the electrolyte above the LOWER level line but not above the UPPER level line.



- If the electrolyte surface falls rapidly and requires frequent addition of distilled water, check the charging system for proper charging rate.
- An S.G. reading of 1.22 (at 20°C, 68°F) or under means that the battery needs recharging off the machine: take it off and charge it from a recharger. Charging the battery in place from the recharger can damage the rectifier and related wiring.

Charging current	0.2 A/10 hours

S.G.	Condition	Measure
over 1.250	Normal	——
1.220 – 1.250	Under charged	Better to recharge
below 1.220	Run down	Recharge or replace

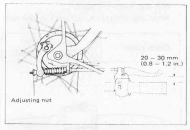
CAUTION:

Do not forget to remove three battery caps to prevent possible battery damage when recharging.

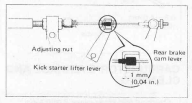
BRAKES

Adjust at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)

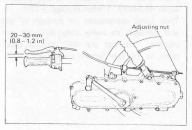
- Adjust by turning the adjusting nut so that the clearance between grip and brake lever is 20 – 30 mm (0.8 – 1.2 in) when applying the front brake.



- As the rear brake wire is linked to the kick starter lifter lever, first adjust with the adjusting nut so that the lifter lever play is 1 mm (0.04 in).



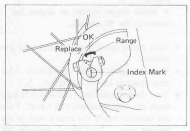
- Adjust by turning the brake cable adjusting nut so that the clearance between lever and grip is 20 – 30 mm (0.8 – 1.2 in).



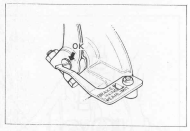
BRAKE SHOE WEAR

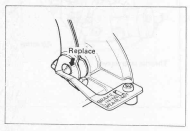
Check every 3 000 km (2 000 miles)

- When applying the front brake, if the extended line of the brake cam lever exceeds the range on the brake panel, replace the brake shoes.



- When applying the rear brake, if the index mark is located forward the indicator, replace the brake shoes.





ENGINE IDLE RPM

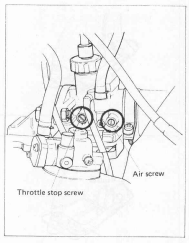
Adjust at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)

- Adjust the throttle cable play.
- Warm the engine up.

NOTE:
A warm engine means an engine has been run for 10 minutes.

- Turn the air screw back 1¾ turns from the bottom.
- Restart engine, and set the throttle valve stop screw at lowest idle speed.
- Turn the air screw in or out within ¼ turn from the original setting (1¾ turns). Find the position where the engine runs at the highest rpm. Turn the air screw in 1/8 turn.
- Adjust the throttle stop screw to obtain the idling rpm as follows.

Idle rpm	1 500 ÷ 150 rpm



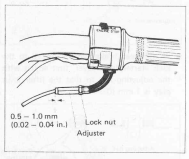
- Finally adjust the throttle cable play.

Throttle cable play	0.5 −1.0 mm (0.02 − 0.04 in)

THROTTLE CABLE

- Loosen the lock nut and adjust the cable slack by turning adjuster in or out to obtain the following slack.
  After adjusting slack, tighten the lock nut.

Cable slack	0.5 − 1.0 mm (0.02 − 0.04 in)



CARBURETOR OVERHAUL AND CLEANING

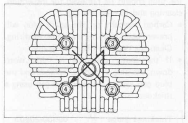
Overhaul and clean every 6 000 km (4 000 miles)

Wash the carburetor and component parts in cleaning solvent after disassembly.
Before reassembly, inspect the float level and needle valve. Adjust and replace parts when necessary. (Refer to page 3-12.)
Then blow compressed air through all jets and passages to make sure they are not clogged. Do not use wire, etc. to clean them, as this can damage the parts.

CYLINDER HEAD NUTS

Retighten at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)

- Cylinder head nuts, when they are not tightened to the specified torque, may result in leakage of the compressed mixture and reduce output. Tighten the 4 nuts evenly one by one in stages until each one is tightened to the specified torque. Tighten the nuts in the order indicated below.

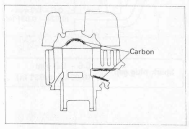


Cylinder head nut tightening torque	**0.8 – 1.2 kg-m (6.0 – 8.5 lb-ft)**

CYLINDER HEAD AND CYLINDER

Remove carbon every 6 000 km (4 000 miles)

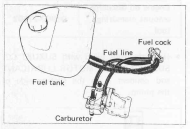
Carbon deposits in the combustion chamber and the cylinder head will raise the compression ratio and may cause pre-ignition or overheating. Carbon deposited at the exhaust port of the cylinder will prevent the flow of exhaust, reducing the output. Remove carbon deposits periodically.



FUEL LINE

Replace every two years

Replace the fuel line every two years.



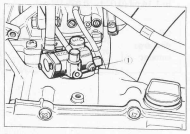
OIL PUMP

Inspect at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)

Air bleeding

Whenever evidence is noted of some air having leaked into the oil line from the oil tank in a machine brought in for servicing, or if the oil pump has to be removed for servicing, be sure to carry out an air bleeding operation with the oil pump in place before returning the machine to the user.

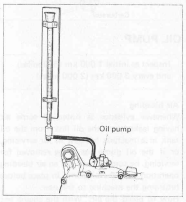
How to bleed the air: With the engine not running condition; loosen screw ①, to let out the air; and, after making sure that the trapped air has all been bled, tighten the screw good and hard.



Checking oil pump capacity
Use the special tool, check the pump for capacity by measuring the amount of oil the pump draws during the specified interval.

Engine oil discharge amount measuring tool	09900-21602

- Have the tool filled with SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT and connect it to the suction side of the pump.



- Holding engine speed at the 2 000 rpm by turning the throttle stop screw and let the pump draw for 6 minutes. For this operation, the reading taken on the measuring cylinder should be from 0.97 to 1.14 ml (0.033 – 0.039 US oz).

Oil discharge amount	**0.97 – 1.14 ml (0.033 – 0.039 US oz) at 2 000 rpm for 6 minutes**

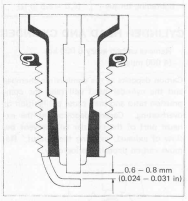
SPARK PLUG

Check at initial 1 000 km (600 miles) and every 3 000 km (2 000 miles)
Replace every 6 000 km (4 000 miles)

Neglecting the spark plug eventually leads to difficult starting and poor performance. If the spark plug is used for a long period, the electrode gradually burns away and carbon builds up along the inside part. In accordance with the Periodic Inspection Chart, the plug should be removed for inspection, cleaning and to reset the gap.

- Carbon deposits on the spark plug will prevent good sparking and cause misfiring. Clean the deposits off periodically.
- If the center electrode is fairly worn down, the plug should be replaced and the plug gap set to the specified gap using a thickness gauge.

Thickness gauge	09900-20803



Spark plug gap	**0.6 – 0.8 mm (0.024 – 0.031 in)**