

Suzuki

SUZUKI OWNER'S GUIDE

The Suzuki 4-wheel drive jeep, called the Brute IV in this country and the L250 by the factory, has a 900cc, 2-cylinder, 2-cycle, air-cooled, cone-clutchless, vee-engine, delivering 52 hp at 5800 rpm. Power is delivered to the rear wheels through a 4-speed cyclo-stromb transmission, with a 2-speed transfer case allowing high and low ratios when in 4-wheel drive.

The 2-cycle engine has many advantages over a 4-cycle in its basic simplicity. It has no valves in the normal sense, no camshaft, no pistons, rings, or valve springs and no oil pan or crank-

case. It uses 2-cycle engines, as used in motorcycles and outboard-empired boats, oil is mixed directly with the gasoline. This can cause serious problems in "backing off" or running without at least partial throttle, as when the fuel is entering the engine, either in any lubricating oil. The Suzuki L250 uses what is called CCI, or Cold-Flow Lubrication. An oil pump draws oil from a separate oil tank and sends it to the cylinders, check valves and crankshaft big-end journals under pressure while the engine is running, whether or not the throttle is being cast.

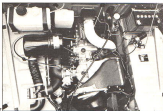
The oil tank, mounted on the foywell, is made of translucent plastic, and the oil level is easily checked each time the 8.8-gal. (33.1-gal) tank is filled. The oil tank holds 5.18-gal. of 2-cycle oil, and the engine uses roughly a quart per tank of gas. The red indicator lamp on the dashboard is a full-size. With sufficient oil in the tank, it glows softly. When the oil level drops to approximately 1 pint, it glows brightly. If the light isn't on at all, the instructions are Master Circuit. Either the bulb has burned out or a power wire has come loose. Recommended oil is the type used for 2-stroke motorcycles or



1.4. The Suzuki Brute IV is a 75-in. wheelbase jeep with 4-wheel drive, sitting on (231) base. This one has optional Texas size wheels, fender flares, vinyl roof and doors, rear seats and radio, listing total is a little over \$2000. Small buy is not a factory or dealer option.

5. Underneath the "360" is not a model number, much like the displacement of the engine in cubic inches. It's a color code, so call that someone else than a god. This gives 33 hp and a 50 mph top. Plans call for a 580 and maybe 700cc engine, which will help a lot.





outwards, with SAE 30 viscosity. The transmission, transfer case, and differential use SAE 90.

The only two filters of any importance are the air filter, filter, and the fuel filter. The air filter can be cleaned by tapping, or with a brush, every 5000 miles or after a dusty trip. The factory recommends replacement every 6000 miles. The fuel filter is under the carburetor air inlet hose, and must be replaced as a unit at the factory-recommended 25,000 miles.

To adjust the idling speed, first warm up the engine until it is running smoothly with no choke. To increase the idling speed, screw in the spring-loaded idling screw or throttle stop. Turn the pilot air adjusting screw in all the way, then back off until the engine revs reach their highest. Now back off on the idling speed screw until the revs drop to where you want them, which is just a tad the side of stalling.

The standard spark plug for the Suzuki Brute is the M16R 8-748. Elsewhere you'll find a list of alternate plugs, and the correct of these to get should be the Champion LS, the AC 43FF or the Auto-Lite AEC. The plug code 840 is 87mm or 3.425 inches. During the break-in period for the engine, the plugs may foul, so it is a good idea to have an extra set in the glovebox.

The recommended factory break-in is 600 miles, with the U.S. distributor claiming that the engine isn't really broken-in so for the first 1000 miles.

Suzuki Brutes are currently sold through dealers in California, Nevada, and Arizona. For information write to the national distributor: International Equipment Corp., 5284 Chandler Ave., San Diego, Calif. 92108. Area Code 714: 237-8248. The Marketing Director is vice driver Tim Sharp.

The standard point gap in the distributor is .008" or .007"-.01". To adjust, loosen the point filing screw and move the con-

tact block by turning it with a screwdriver in the adjusting slot. It is necessary to adjust the ignition timing each time the distributor gap is set, and this is done manually with the Suzuki. Remove the two spark plugs, both to make it easier to turn over the engine by hand during the timing fan blades on the front end of the crankshaft, and to make it possible to see the (right) spark. Place the plug from the third cylinder (with its high tension cable still attached) on some metal part of the engine where it will be electrically grounded.

Loosen the distributor clamp bolt at its base, and rotate the distributor exactly to the right. Remove the rubber plug from the flywheel inspection hole atop the rear of the engine. Rotate the engine, watching the flywheel through the hole, until the 15° timing mark lines up with a small flange cast into the rear surface of

4. Brute's engine is a 3-cylinder, 2-cylinder inline, laid on its left side. Crankshaft is a 4-main, roller-type. Cooling fan is located right to crankshaft end. As a 2-cylinder it has no camshaft, no pushrods, no valves and no combustion or pump.

7. Engine compartment is very accessible, and with room for fan and blower-displacement engine. Access forward on left, with hand-operated squarer, heater (200), brake fluid reservoir, battery and coil. Plug on an engine's left, along right face near the transmission filter plug, clutch rod, oil pump and the flywheel counterbalance which reach.

8. Suzuki Brute engine uses a pressure fed system to force oil to the main crankshaft journals, main valves and cylinder walls, with the excess oil with the assistance as it is returned with 2-cylinder system. A quart of 2-cylinder motor oil and outboard oil last about one gas tank of fuel. Plastic filter (oil) filter in top of tank, which holds about 2 qts. Note dash light sensor unit.

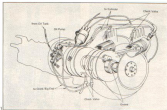
the inspection hole. Correct timing is $10^{\circ} \pm 1^{\circ}$. Before Top Dead Center (TDC), now turn on the ignition switch on the dashboard. Rotate the distributor slowly left or counter-clockwise until the No. 1 plug sparks. Double back and forth until you feel that your distributor position is just entering the start of the spark. Tighten the distributor clamping bolt right at that spot and put the rubber plug back in the flywheel inspection hole.

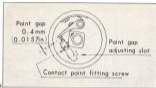
1. Oil pump on right side of engine sends oil to all essential parts of the Suzuki engine. Many 1-cylinders will run their main bearings dry if fuel-oil mix is not constantly fed into engine. The Suzuki won't.

2, 3. Resetting idle speed is relatively simple. Spring-loaded accelerator slip screw is tightened, increasing engine rpm (rev), then pilot air screw is turned up tight, then backed off to maximum rpm. Slip screw can then be turned back to ideal idle.

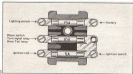
4. Suzuki engine is fitted electrically, connected like a VW. Rubber plug fits timing hole. Stick in "ignition timing 10" - 1" screw - distributor is then rotated until No. 1 spark plug fires true. It is necessary to re-time when gap in distributor has been adjusted.

5. It's a little starting to find out few concepts inside distributor cap and brush-arranged rotor. Everything is accessible: plug below left, coil and battery right, distributor center. It's "straight-forward."





NGK	Champion	AC	Auto-Lite	Bosch	KLG	Lodge	NIPPONDENSO
B-7HS	L5	42FF	AE2	W240TI	F80	2HN, 3HN	W22FS



The standard clutch pedal play is 0.8-in. before the clutch begins to operate. If the play is too little, you'll get clutch slippage and may damage the throwout bearing. If there is too much play, you may not be able to disengage it completely; the result is sloppy shifting. There is a clutch cable adjusting nut on the right side of the backhousing, but all of the hydraulic inspection holes, where clutch play can be adjusted.

The fuse box is located under the steering column bracket, and contains only three fuses, from top to bottom: 15, 10, and 5-amp. Don't substitute higher ampereage fuses, or an electrical fire could result. If a newly installed fuse blows on you, there is obviously a serious short or overload somewhere in its circuit, and you'd better get a load for total serious damage results.

The transmission oil filler plug is the square one on the right side of the casing, about 5 in. behind the clutch shaft and cable adjusting nut. A complete transmission oil change will use 3.5-qt. of 80 weight. The front and rear differential have a filler tube about halfway up the round base. Remove the plug (which

and stick in a finger. The oil should be up to the level of the base. If not, add some SAE 90. There is a drain plug on each differential for a complete oil change.

At 32 hp, the Suzuki is obviously underpowered for normal highway use, with 50-55 mph top speed when the engine is well broken-in. There is, however, plenty of room left in the engine compartment and it seems likely that Suzuki will drop in a 500 or 700cc engine in the near future. The newer Suzuki Midget comes with a turbocharged engine which will give both the advantages and disadvantages of a 4-cylinder engine and of water-cooling.

Of course the 30-hp model performs very well in track use, but in many ways is still at best a non-made-by-Cosworth 1000S. Here, the model shown in the photos here has some of the more necessary details, which take the price up to over \$2000. What I find that most of the other 4-wheel drive vehicles will cost that much less, you would have the advantage of more horsepower and more competitive highway speeds. If you're looking for the real thing, \$2000, or even \$2500, would buy

1. Point gap in distributor is set by moving point block about spring-loaded rotor arm when at top of plug distributor cam lobe. The No. 1 plug should be 18°-1° BTDC for the correct ignition timing every time.

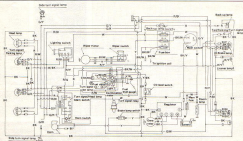
2. Spark plugs are easy to get by, but should be checked frequently for condition and for proper gap. Pressure gauge is not included in test kit, but is both inexpensive and essential.

3. Proper spark plug gap for 80cc.

4. Suzuki Midget comes with NGK plug but many other brands will also work.

5. Fuse box is under steering column, uses three different ampereage fuses. Don't replace them with higher amp fuses, or you may have an electrical fire. (Stop and find out what's wrong.)

6. An filler cap comes off and placed can be cleaned with a brush. For really dirty going, a piston oil would be better, but the factory one works quite well ordinarily. (Banded filler on left is oil tank, similar washer tank is on right.)



Head lamp	12V 50/40W	License lamp	12V 10W
Turn signal/Parking lamp	12V 6W	Brake lamp	12V 23W
Side turn signal lamp	12V 6W	Turn signal/Tail lamp	12V 23/8W
Speedometer lamp	12V 3.4W x 6	Parking lamp	12V 3.4W
Room lamp	12V 6W	Main fuse	20A
Back-up lamp	12V 10W	Fuses in fuse box	15A, 10A, 5A

W: White	R/Y: Red with Yellow tracer	B: Blue
R: Red	G/B: Green with Blue tracer	Y/R: Yellow with Red tracer
Y: Yellow	B/W: Black with White tracer	G/R: Green with Red tracer
G: Green	R/W: Red with White tracer	G/Y: Green with Yellow tracer
BK: Black	R/BK: Red with Black tracer	R/B: Red with Blue tracer

a lot of Wisconsin done buggy, with engines from 40 to 100 cfm, with side, high-tension bars on the rear, the buggy should be able to go almost anywhere the Suzuki or any of the other 4-wheelers can go.

Although the Suzuki Brute IV would seem to be trouble-free mechanically, and easy to service and repair, with its present 160cc engine and 12 hp, it must be considered more of an amusing novelty than a serious on-road or off-road vehicle. And one of the great drawbacks of any 2-cycle engine is that there is very little you can do to get rid them for more power. A bigger-displacement 2-cycle is the only answer, if you must stick with 2-cycle engines.



1. Suzuki Brute IV wiring diagram.

2. Brake master cylinder is on the left side of battery, with brake fluid reservoir and brake light switch atop. Level is steady even.

3. New Brute IV Wagon will have water-cooled 4-pinch engine, with more horsepower and better highway speed.