

D - ADJUSTMENTS

Article Text (p. 2)

1993 Suzuki Swift

For 111

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Thursday, April 08, 1999 09:26AM

Sidekick (MPI)

Engine Cold

Intake & Exhaust003-.005 (.08-.12)

Engine Hot

Intake & Exhaust005-.006 (.12-.16)

Swift DOHC (1)

(1) - Hydraulic valve lash adjusters are used and no adjustment is required.

AA

Swift SOHC

1) Remove valve cover. Remove right inner fender apron extension to enable timing marks to be seen. Align crankshaft pulley timing mark with TDC mark on timing belt cover. See Fig. 1.

2) Remove distributor cap. Ensure rotor is pointing upward toward distributor hold-down bolt and to No. 1 terminal of distributor cap. If rotor is not as described, rotate crankshaft 360 degrees.

3) Measure valve clearance between adjustment screw and valve stem using shim thickness gauge. Check intake valve clearance of cylinders No. 1 and 2 and exhaust valve clearance of cylinders No. 1 and 3. See VALVE CLEARANCE SPECIFICATIONS table. Turn crankshaft one complete revolution (360 degrees). Check intake valve clearance of cylinders No. 3 and 4 and exhaust valve clearance of cylinders No. 2 and 4.

4) Adjust valves by loosening lock nut and turning adjusting screw until clearance is as specified. Hold adjusting screw while tightening lock nut to 11.0-13.5 ft. lbs. (15-18 N.m). Recheck clearance.

IGNITION TIMING

NOTE: Verify that increasing engine speed advances ignition timing.

Samurai & Sidekick

1) Ensure transmission is in Neutral or Park and parking brake is set. Inspect crankshaft pulley timing mark and timing mark indicator on timing belt cover. See Fig. 1. Clean marks as required. Start engine, and warm it to normal operating temperature. Turn engine off with ignition on for 5 seconds. Restart engine. Run engine at 2000 RPM for 5 minutes, and then return it to idle. Turn all accessories off. Attach timing light to No. 1 spark plug wire. Ensure idle speed is correct. See IDLE SPEED SPECIFICATIONS table under IDLE SPEED & MIXTURE.

CAUTION: Driving with jumper wire installed in monitor coupler will damage catalytic converter.

2) Remove protective cap from monitor coupler located next to battery. Connect jumper wire between terminals "C" (ground) and "D" (test switch). See Fig. 2. Aim timing light at crankshaft pulley and timing cover timing marks. If ignition timing is not within

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specification, loosen distributor hold-down flange bolts, and rotate distributor to obtain correct ignition timing. See IGNITION TIMING table. Tighten distributor hold-down flange bolts, and recheck ignition timing.

NOTE: With jumper wire installed, timing should be fixed. If timing varies, terminal "D" is not properly grounded.

3) Remove jumper wire from monitor coupler. Ensure ignition timing advances as engine speed increases. If ignition timing does not advance, check TPS, monitor coupler wiring circuit, engine start signal circuit and ECM.

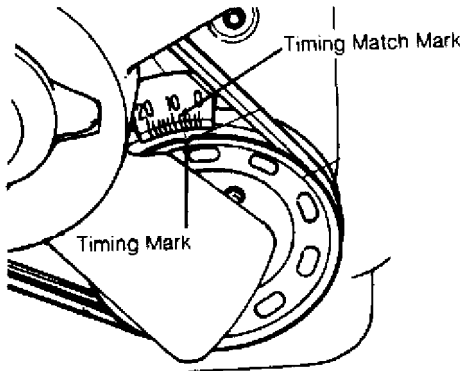


Fig. 1: Locating Ignition Timing Mark
Courtesy of Suzuki of America Corp.

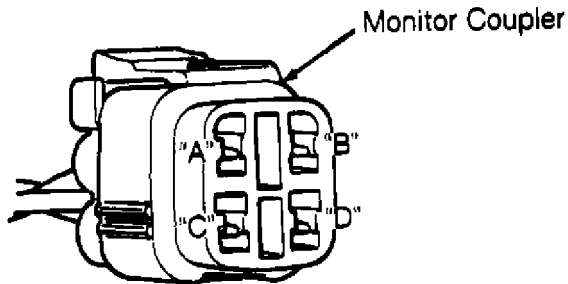


Fig. 2: Identifying Monitor Coupler Terminals (Samurai & Sidekick)
Courtesy of Suzuki of America Corp.

IGNITION TIMING TABLE (Degrees BTDC @ RPM) (1)

AA

Application	Man. Trans.	Auto. Trans.
Samurai	(2) 7-9 @ 800	Not Used
Sidekick		
MPI	(2) 4-6 @ 800	(2) 4-6 @ 800
TBI	(2) 7-9 @ 800	(2) 7-9 @ 800
Swift		

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DOHC (3) 5-7 @ 800-900 (3) 5-7 @ 800-900
SOHC (3) 4-6 @ 750 (3) 4-6 @ 850

- (1) - See Fig. 1 for timing mark location.
- (2) - With jumper wire installed between "C" and "D" terminals of monitor coupler connector, located near battery. See Fig. 2.
- (3) - With jumper wire installed between "D" and "E" terminals of monitor coupler connector, located near ignition coil.
See Fig. 3.

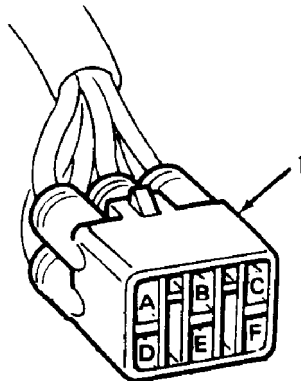
AA

Swift

1) Ensure transmission is in Neutral or Park. Set parking brake. Inspect crankshaft pulley timing mark and timing mark indicator on timing belt cover. See Fig. 1. Clean marks as required. Start engine, and warm it to normal operating temperature. Turn all accessories off. Attach timing light to No. 1 spark plug wire. Ensure idle speed is correct. See IDLE SPEED SPECIFICATIONS table under IDLE SPEED & MIXTURE.

CAUTION: Driving with jumper wire installed in monitor coupler will damage catalytic converter.

2) Connect terminals "D" (ground) and "E" (test switch) of monitor coupler. See Fig. 3. Aim timing light at crankshaft pulley and timing cover timing marks. If ignition timing is not within specification, loosen distributor hold-down bolt and rotate distributor to obtain correct ignition timing. See IGNITION TIMING table. Tighten distributor hold-down bolt, and recheck ignition timing.



1. Monitor Coupler
- A. Blank
- B. Diagnostic Switch Terminal
- C. Diagnostic Output Terminal
- D. Ground Terminal
- E. Test Switch Terminal
- F. Duty Output Terminal

92C26098

Fig. 3: Identifying Monitor Coupler Terminals (Swift)
Courtesy of Suzuki of America Corp.

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PICK-UP COIL AIR GAP

1) Remove distributor cap and rotor. Using non-magnetic shim thickness gauge, measure air gap between reluctor tooth and pick-up coil. See PICK-UP COIL AIR GAP table. If adjustment is required, loosen pick-up coil plate hold-down screws.

2) Using blade screwdriver, move pick-up coil plate to adjust air gap to specification. See PICK-UP COIL AIR GAP table. Tighten screws, and recheck air gap. Ensure no metal particles are on pick-up coil tooth.

PICK-UP COIL AIR GAP TABLE

AA

Application	In. (mm)
Samurai	(1)
Sidekick	(1)
Swift	
DOHC (2)	.008-.012 (.20-.30)
SOHC	.008 (.20)

(1) - Not adjustable.

(2) - Also referred to as crank angle sensor air gap.

AA

IDLE SPEED & MIXTURE

NOTE: Mixture is not adjustable. Mixture is controlled by ECM from various sensor inputs.

COLD (FAST) IDLE

NOTE: Cold start or fast idle speed is not adjustable. Air valve operation supplies by-pass air for cold starting.

IDLE SPEED

NOTE: DO NOT adjust idle speed in areas above 8200 ft. elevation.

Samurai

1) Start engine, and warm it to normal operating temperature. Install spare fuse into diagnosis terminal of fuse box, and ensure Malfunction Indicator Light (MIL) indicates Code 12. See Fig. 4.

2) Turn engine off. Connect Duty Meter (99963-00006) to monitor coupler duty check terminal "A" and ground terminal "C". See Fig. 2. Test connector is located near battery. Turn ignition on, and wait 5 seconds.

3) Start engine, run it at 2000 RPM for 5 minutes and then return it to idle. Using duty meter, ensure idle speed and IAC duty percentage are within specification. See IDLE SPEED SPECIFICATIONS and IAC DUTY AT SPECIFIED IDLE SPEED tables. If idle speed and/or IAC duty percentage require adjustment, remove idle speed adjusting screw

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protective cap on throttle body. To adjust idle speed, turn adjusting screw. See Fig. 5.

4) When idle speed and IAC duty percentage are within specification and vehicle is equipped with A/C, go to step 5). If vehicle is not equipped with A/C, reinstall idle speed adjusting screw protective cap to throttle body. Remove duty meter from monitor coupler, and rein-stall cap. Remove spare fuse from diagnosis terminal of fuse box.

5) Turn A/C on, and set fan switch to LOW position. Check idle speed and IAC duty percentage. If idle speed and/or IAC duty percentage is not within specification, turn A/C VSV adjusting screw to adjust idle. See Fig. 6.

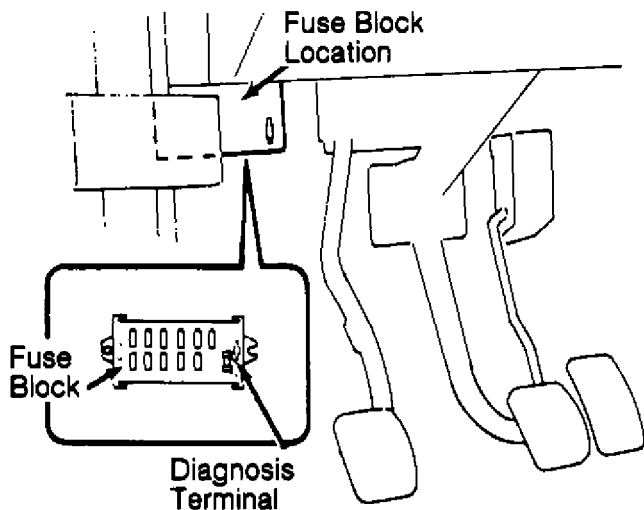


Fig. 4: Installing Diagnosis Terminal Fuse (Samurai)
Courtesy of Suzuki of America Corp.

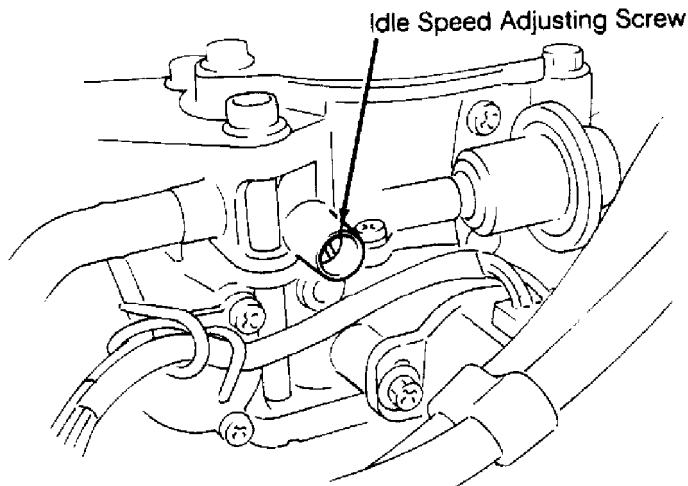


Fig. 5: Locating Idle Speed Adjusting Screw (Typical)
Courtesy of Suzuki of America Corp.

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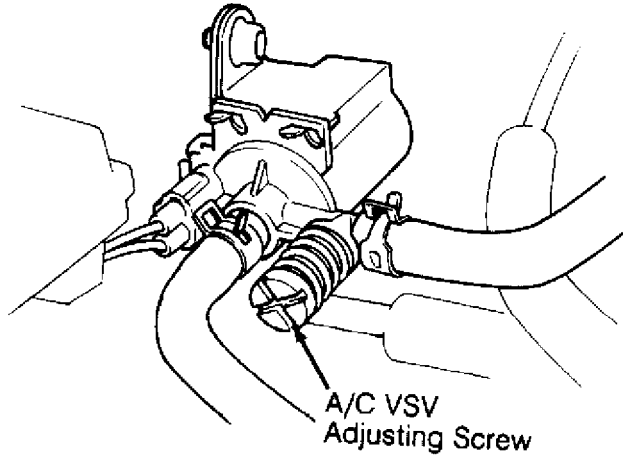


Fig. 6: Locating A/C VSV Adjusting Screw (Samurai & Sidekick)
 Courtesy of Suzuki of America Corp.

IDLE SPEED SPECIFICATIONS TABLE (1)

Application	Idle RPM
Samurai	
With A/C Off	750-850
With A/C On	(2) 950-1050
Sidekick	
With A/C Off	750-850
With A/C On	(3) 950-1050
Swift	
DOHC	
With A/C Off	800-900
With A/C On	(2) 850-950
SOHC	
With A/C Off	
Auto. Transaxle	800-900
Man. Transaxle	700-800
With A/C On	
Auto. Transaxle (4)	(2) 800-900
Man. Transaxle (4)	(2) 700-800
Auto. & Man. Transaxles (5)	850-950

- (1) - Transaxle or transmission in Neutral or Park.
- (2) - A/C idle speed is adjusted by rotating adjusting screw on A/C Vacuum Switching Valve (VSV).
- (3) - With auto. transmission in gear, idle RPM is 750-850.
- (4) - When ECM part number ends with "0".
- (5) - When ECM part number ends with number other than "0".

IAC DUTY AT SPECIFIED IDLE SPEED TABLE (1)

Application	Percent
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Samurai & Sidekick	50
Swift	
DOHC	30-40
SOHC (2)	25-35

(1) - See IDLE SPEED SPECIFICATIONS table.

(2) - With A/C turned off (if equipped).

AA

Sidekick

1) Start engine, and warm it to operating temperature. Turn all accessories off. Ensure all fuel and emission control system wire connectors and hoses are properly connected. Ensure accelerator cable has free play at throttle body. Ensure ignition timing is correct. See IGNITION TIMING table under IGNITION TIMING. Ensure air cleaner and ducts are properly installed and air filter element is in good condition.

2) Connect service wire between terminals "B" (diagnosis switch) and "C" (ground) of monitor coupler. See Fig. 2. Ensure MIL (CHECK ENGINE light) indicates Code 12. Turn engine off, and connect Duty Meter (99963-00006) to monitor coupler duty terminals "A" (output) and "C" (ground). Test connector is located near battery. Connect tachometer.

3) Start engine, and warm it to operating temperature. Ensure idle speed and IAC duty percentage are within specification. See IDLE SPEED SPECIFICATIONS and IAC DUTY AT SPECIFIED IDLE SPEED tables. If idle speed and/or IAC duty percentage require adjustment, remove idle speed adjusting screw protective cap on throttle body. Turn idle speed adjusting screw to adjust idle to specification. See Fig. 5.

4) When idle speed and IAC duty percentage are as specified and vehicle is equipped with A/C, go to next step. If vehicle is not equipped with A/C, reinstall idle speed adjusting screw protective cap to throttle body and remove service jumper wire. Remove duty meter from monitor coupler, and reinstall cap.

5) Turn A/C on, and set fan switch to LOW position. Check idle speed and IAC duty percentage with A/C on. If idle speed and IAC duty percentage are not as specified, turn A/C VSV adjusting screw to adjust idle to specification. See Fig. 6.

NOTE: On Swift, specified values used for this inspection and adjustment vary depending on type of ECM. Type of ECM can be identified by last digit of ECM part number. Last digit will be "0" or a number other than "0".

Swift SOHC

1) Idle speed is controlled by ECM using IAC valve and requires no adjustments under normal conditions. If conditions require idle speed to be adjusted, start engine and warm it to operating temperature. Turn all accessories off. Ensure all fuel and emission control system wire connectors and hoses are properly connected. Ensure accelerator cable has free-play, air cleaner and ducts are properly installed and air filter element is in good condition.

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2) Ensure ignition timing is correct. See IGNITION TIMING table under IGNITION TIMING. Connect terminal "B" (diagnosis switch) to terminal "D" (ground) using a service wire. See Fig. 3. MIL (CHECK ENGINE light) should indicate Code 12. Attach duty meter to duty output terminal "F" and ground terminal "D". Remove idle speed adjusting screw cap from side of throttle body, just above throttle lever. Turn idle speed adjusting screw to obtain correct idle speed. See IDLE SPEED SPECIFICATIONS and IAC DUTY AT SPECIFIED IDLE SPEED tables. On vehicles without A/C, remove service wire, reinstall protective cap to throttle body and recheck idle speed.

3) On vehicles equipped with A/C, turn A/C switch to ON position and set fan switch to HIGH position. With A/C operating correctly, verify idle speed is 850-950 RPM. If adjustment is required, turn A/C Vacuum Switching Valve (VSV) adjusting screw as necessary. See Fig. 7. See IDLE SPEED SPECIFICATIONS table. Remove service wire, reinstall protective cap to throttle body and recheck idle speed.

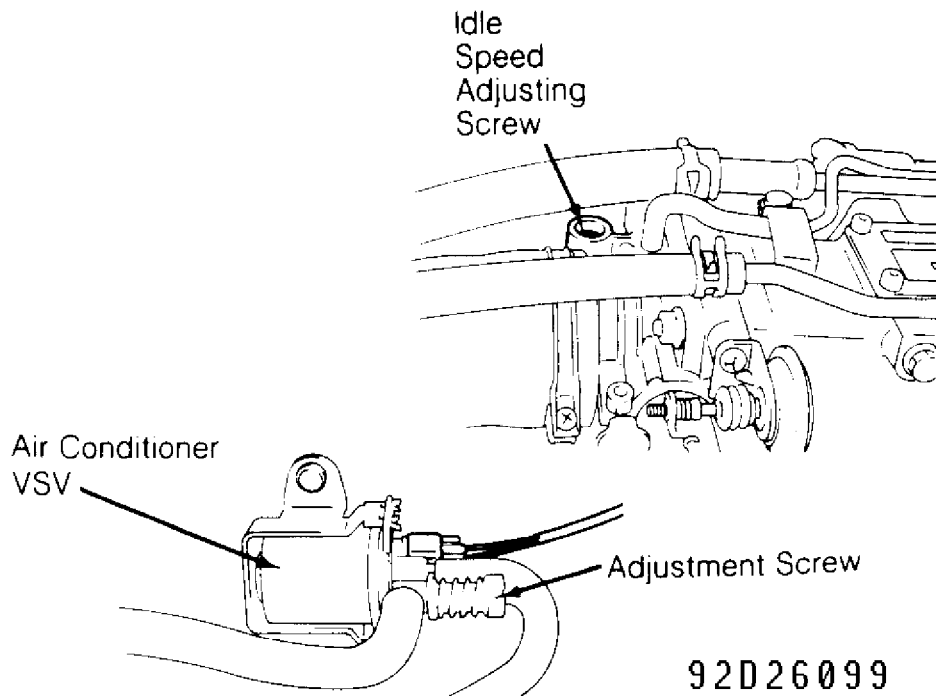


Fig. 7: Identifying Typical Idle Adjustment System (Swift)
Courtesy of Suzuki of America Corp.

Swift DOHC

1) Idle speed is controlled by IAC valve and should not require adjustment. If idle speed needs to be changed, start engine and warm it to operating temperature. Turn all accessories off. Ensure all fuel and emission control system wire connectors and hoses are properly connected. Ensure accelerator cable has free play. Ensure air cleaner and ducts are properly installed and air filter element is in good condition.

2) Ensure ignition timing is correct. See IGNITION TIMING

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table under IGNITION TIMING. Connect terminal "B" (diagnosis switch) to terminal "D" (ground) using a service wire. See Fig. 3. MIL (CHECK ENGINE light) should indicate Code 12. Attach duty meter to duty output terminal "F" and ground terminal "D". Remove idle speed adjusting screw protective cap from top of throttle body. See Fig. 7. Turn idle speed adjusting screw to obtain correct idle RPM. See IDLE SPEED SPECIFICATIONS and IAC DUTY AT SPECIFIED IDLE SPEED tables.

3) On vehicles equipped with A/C, turn A/C switch to ON position and set fan switch to HIGH position. With A/C operating correctly, verify idle is 850-950 RPM and IAC duty is 30-40 percent. If adjustment is required, turn A/C Vacuum Switching Valve (VSV) adjusting screw to obtain correct idle. See IDLE SPEED SPECIFICATIONS table. Remove service wire, reinstall protective cap to throttle body and recheck idle speed.

THROTTLE CABLE

Samurai

1) Ensure throttle cable has 0.4-0.6" (10-15 mm) free play. Hold exposed portion of cable at center and move cable up and down to measure play. Use lock nut and adjusting nut on cable bracket to adjust free play. See Fig. 8.

2) If throttle opener rod is pushed back by hand (i.e., throttle valve is at idle position), cable free play should be 0.12-0.20" (3.0-5.0 mm). Use lock nut and adjusting nut on cable bracket to adjust free play.

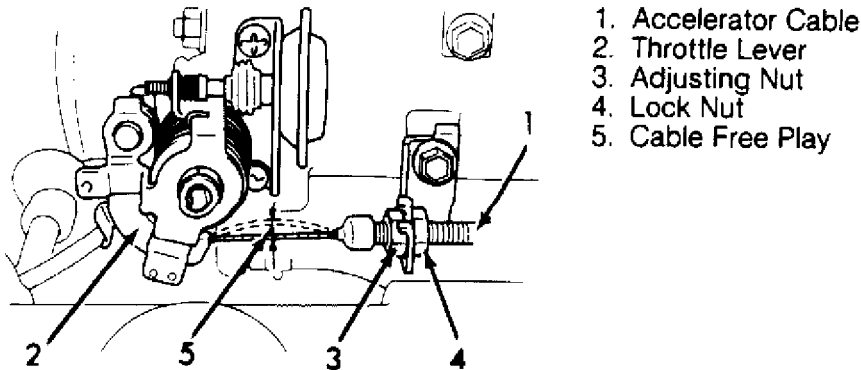


Fig. 8: Adj. Typical Acc. Cable Play (Samurai, Sidekick TBI & Swift)
Courtesy of Suzuki of America Corp.

Sidekick (MPI)

1) With throttle valve closed, accelerator pedal play should be 0.08-0.27" (2.0-7.0 mm). Use lock nut and adjusting nut on cable bracket to adjust free play. See Fig. 9.

2) With accelerator pedal depressed fully, check clearance between throttle lever and lever stopper at throttle body. If clearance is not 0.02-0.07" (0.5-2.0 mm), correct by changing height of pedal stopper bolt located under accelerator pedal. After throttle cable adjustment is complete, adjust transmission kickdown cable.

3) Check A/T cable free play. See Fig. 9. If clearance is not 0.03-0.06" (0.8-1.5 mm), use lock nut and adjusting nut on cable

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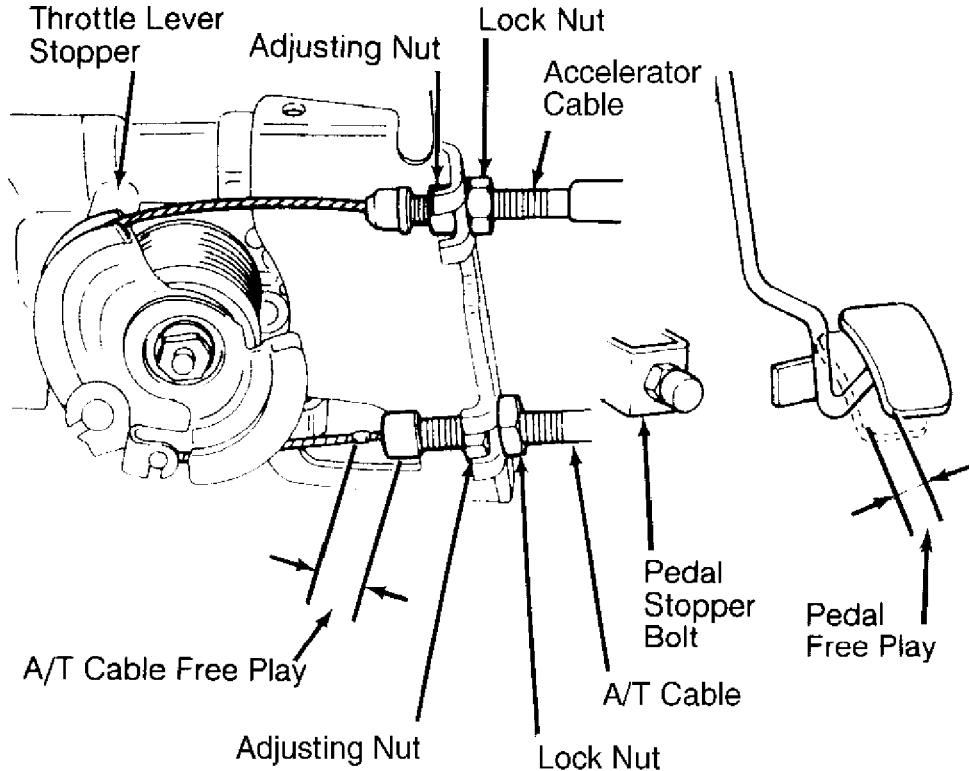
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bracket to adjust free play.



92G26100

Fig. 9: Adjusting Cable Play (Sidekick MPI)

Courtesy of Suzuki of America Corp.

Sidekick (TBI)

1) Ensure cable has 0.4-0.6" (10-15 mm) free play. Hold exposed portion of cable at center and move cable up and down to adjust free play. See Fig. 8.

2) After throttle cable adjustment is complete, adjust transmission kickdown cable. Loosen and back off kickdown lock nut and adjusting nut considerably. With accelerator pedal fully depressed, pull on kickdown cable housing to remove cable free play. With free play removed, ensure clearance between kickdown cable bracket and upper lock nut is 0.039" (1.00 mm). Adjust upper lock nut as necessary.

3) Holding upper lock nut position on kickdown cable, release accelerator pedal. While holding upper lock nut position, securely tighten lower adjusting nut to bracket.

Swift

Ensure cable has .12-.20" (3.0-5.0 mm) free play. Hold exposed portion of cable at center and move cable up and down to measure free play. Use lock nut and adjusting nut on cable bracket to adjust free play. See Fig. 8.

DASHPOT

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Swift DOHC

1) Ensure transmission is in Park or Neutral and parking brake is set. Start engine, and warm it to operating temperature. Turn all accessories off. Ensure idle speed is within specification. See IDLE SPEED SPECIFICATIONS table under IDLE SPEED.

2) Operate throttle lever to increase and decrease engine RPM while noting RPM at which dashpot rod contacts throttle lever. Adjust dashpot adjusting screw to specified RPM at which dashpot rod should contact throttle lever. See Figs. 8 and 13. See DASHPOT ADJUSTMENT table.

DASHPOT ADJUSTMENT TABLE

AA

Application (1) RPM

Swift DOHC 3000-3400

(1) - Engine speed when throttle lever contacts dashpot rod after deceleration.

AA

THROTTLE OPENER

Samurai

1) Ensure transmission is in Neutral or Park. Set parking brake. Turn ignition on for 5 seconds, and then start engine. Run engine at 2000 RPM for 5 minutes to warm it to operating temperature. Return engine to idle speed. Turn all accessories off. Disconnect and plug vacuum hose from throttle opener on throttle body.

2) Engine speed should increase to 2150-2250 RPM when vacuum hose is removed from throttle opener. If engine speed is not within specification, adjust by turning throttle opener adjusting screw. See Fig. 10. Reconnect vacuum hose when adjustment is within specification. See THROTTLE OPENER SPECIFICATIONS table.

Sidekick (TBI)

1) Ensure transmission is in Neutral or Park, and set parking brake. Warm engine to operating temperature. Turn all accessories off. Disconnect and plug vacuum hose from throttle opener on throttle body.

2) Engine speed should increase to 2100-2300 RPM when vacuum hose is removed from throttle opener. If engine speed is not within specification, adjust by turning throttle opener adjusting screw. See Fig. 10. Reconnect vacuum hose when adjustment is within specification. See THROTTLE OPENER SPECIFICATIONS table.

THROTTLE OPENER SPECIFICATIONS TABLE

AA

Application (1) RPM

Samurai 2150-2250

Sidekick TBI 2100-2300

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- (1) - Transaxle or transmission in Neutral or Park with vacuum hose disconnected and plugged at throttle opener.

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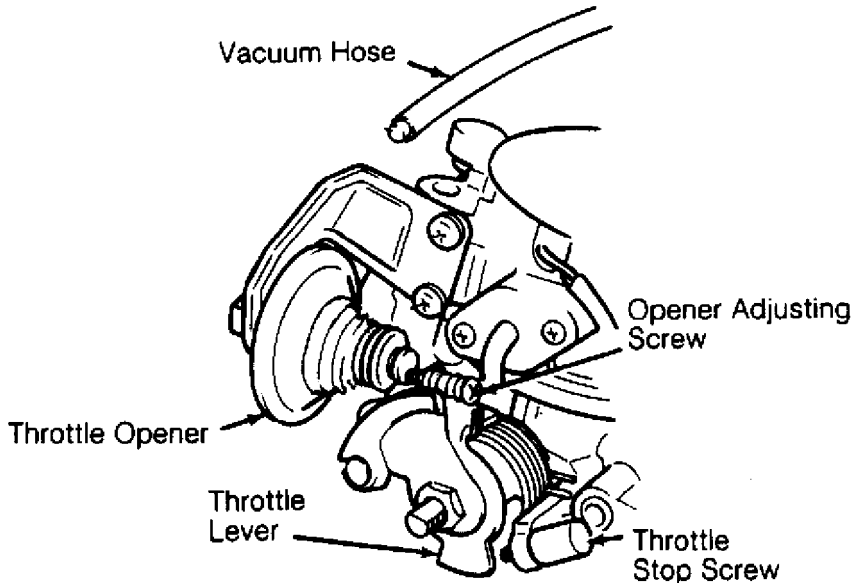


Fig. 10: Adjusting Throttle Opener (Samurai & Sidekick TBI)
Courtesy of Suzuki of America Corp.

THROTTLE POSITION SENSOR (TPS)

THROTTLE POSITION SENSOR (TPS) RESISTANCE TABLE

AA

Application Ohms

Samurai

Between Terminals "C" & "D"	
With .008" (.20 mm) Clearance At Stop Screw	0-550
With .016" (.41 mm) Clearance At Stop Screw	Infinity
Between Terminals "A" & "D"	3500-6500
Between Terminals "B" & "D"	
At Idle (1)	0-2000
At Wide Open Throttle	(2) 2000-6500

Sidekick (MPI)

Between Terminals "A" & "B"	
With .020" (.50 mm) Clearance At Stop Screw	0-500
With .031" (.80 mm) Clearance At Stop Screw	Infinity
Between Terminals "A" & "D"	3500-6500
Between Terminals "A" & "C"	
At Idle	300-2000
At Wide Open Throttle	(3) 2000-6500

Sidekick (TBI)

Between Terminals "C" & "D"	
With .012" (.3 mm) Clearance At Stop Screw	0-500
With .020" (.5 mm) Clearance At Stop Screw	Infinity
Between Terminals "A" & "D"	3500-6500

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Between Terminals "B" & "D"	
At Idle	(1) 300-2000
At Wide Open Throttle	(2) 2000-6500
Swift (DOHC)	
Between Terminals "C" & "D"	
With .012" (.30 mm) Clearance At Stop Screw	0-500
With .035" (.89 mm) Clearance At Stop Screw	Infinity
Between Terminals "C" & "A"	3500-6500
Between Terminals "C" & "B"	
At Idle	0-2000
At Wide Open Throttle	3500-6500
Swift (SOHC)	
Between Terminals "A" & "B"	
With .012" (.30 mm) Clearance At Stop Screw	Less Than 5000
With .035" (.89 mm) Clearance At Stop Screw	Infinity
Between Terminals "A" & "D"	4370-8130
Between Terminals "A" & "C"	
At Idle	240-1140
At Wide Open Throttle	3170-6600

- (1) - To obtain idle position, apply 19 in. Hg vacuum to throttle opener.
- (2) - There should be more than 2000 ohms difference between idle and wide open throttle resistance.

AA

CAUTION: DO NOT rotate Samurai throttle stop screw to adjust idle. Throttle stop screw is factory-set, and is used as zero reference point for all other adjustments.

TPS Inspection (Samurai)

1) Disconnect TPS connector. Using hand vacuum pump, apply 20 in. Hg vacuum to throttle opener to move throttle lever to idle position. Using ohmmeter, check resistance between upper and lower terminals of TPS connector with proper shim thickness gauge inserted between throttle valve lever and stop screw. See Fig. 10. See THROTTLE POSITION SENSOR (TPS) RESISTANCE table.

2) If TPS inspection results are not within specification, adjust TPS. Replace TPS if it cannot be adjusted to specification.

TPS Adjustment (Samurai)

1) Disconnect TPS harness connector and throttle opener vacuum hose. Using hand vacuum pump, apply 20 in. Hg vacuum to throttle opener to move throttle lever to idle position. Insert .012" (.30 mm) shim thickness gauge between throttle lever and throttle stop screw. See Fig. 10.

2) Connect ohmmeter between terminals "C" and "D" of TPS connector. See Fig. 11. Loosen TPS mounting bolts, and turn TPS fully clockwise. Turn TPS counterclockwise slowly to find position ohmmeter reading changes from infinity to zero ohms. Tighten TPS mounting bolts at that position.

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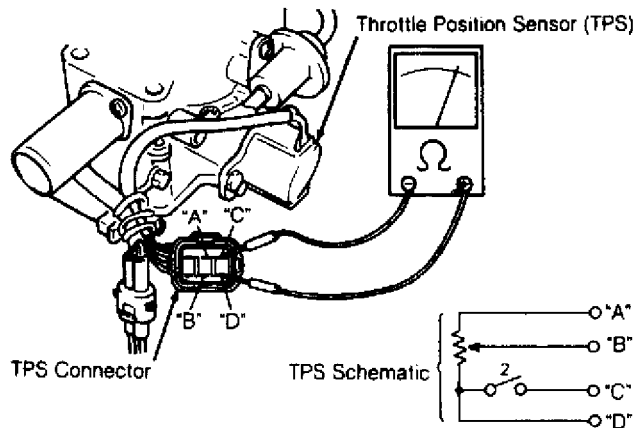


Fig. 11: Throttle Pos. Sensor (TPS) Term. ID (Samurai & Sidekick TBI)
Courtesy of Suzuki of America Corp.

3) Ensure continuity does not exist between terminals "C" and "D" when .016" (0.40 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw.

4) Ensure continuity exists between terminals "C" and "D" when .008" (0.20 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw.

5) If continuity is not as specified in steps 3) and 4), TPS zero adjustment is incorrect. Start adjustment sequence again. If results are the same after readjusting, replace TPS. After final adjustment is completed, reconnect TPS connector and vacuum hose to throttle opener.

TPS Inspection (Sidekick MPI)

Disconnect negative battery cable. Unplug TPS connector. Using ohmmeter, check resistance between terminals of TPS connector. See Fig. 15. If idle switch check is not within specification, adjust TPS installation angle. See THROTTLE POSITION SENSOR (TPS) RESISTANCE table. Replace TPS if it cannot be adjusted to specification.

TPS Adjustment (Sidekick MPI)

1) Disconnect negative battery cable. Unplug TPS connector, and insert .026" (0.65 mm) shim thickness gauge between throttle lever and throttle stop screw. Loosen TPS mounting screws. Connect ohmmeter between TPS terminals "A" and "B", and check resistance. See THROTTLE POSITION SENSOR (TPS) RESISTANCE table.

2) Turn TPS fully counterclockwise, and then turn it clockwise slowly to locate point where ohmmeter reading changes from zero to infinity. Holding TPS at that position, tighten TPS mounting screws snug.

3) Ensure continuity does not exist between terminals "A" and "B" when 0.037" (0.8 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw. See Figs. 14 and 15.

4) Ensure continuity exists between terminals "A" and "B" when 0.020" (0.5 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw. Tighten TPS mounting screws to 22.8-38.4 INCH lbs. (2.5-4.5 N.m).

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5) If continuity is not as specified in steps 3) and 4), TPS zero adjustment is incorrect. Start adjustment sequence again. If results are the same after readjusting, replace TPS. After final adjustment is completed, reconnect TPS connector.

TPS Inspection (Sidekick TBI)

Disconnect negative battery cable. Disconnect TPS harness connector. Using ohmmeter, check resistance between each pair of terminals. See Fig. 11. See THROTTLE POSITION SENSOR (TPS) RESISTANCE table. If resistances are not as specified, adjust TPS. Recheck resistance between each pair of terminals. If TPS cannot be adjusted to obtain correct values, replace TPS.

TPS Adjustment (Sidekick TBI)

1) Disconnect TPS harness connector and throttle opener vacuum hose. Using hand vacuum pump, apply 19 in. Hg vacuum to throttle opener to move throttle lever to idle position. Counting number of turns, loosen idle speed adjusting screw until clearance is obtained between throttle lever and adjusting screw. Record number of turns. Connect ohmmeter between terminals "C" and "D". See Fig. 11.

2) Insert .016" (.40 mm) thickness gauge between idle speed adjusting screw and throttle lever. Loosen TPS mounting screws. Turn TPS fully clockwise. Slowly rotate TPS counterclockwise to locate position where ohmmeter readings changes from infinity to zero ohms. Holding TPS at this position, tighten mounting screws to 30 INCH lbs. (3.4 N.m.). Repeat TPS INSPECTION (SIDEKICK TBI) to verify correct adjustment and operation.

3) After verifying adjustment, reconnect TPS harness connector and throttle opener vacuum hose. Turn idle speed adjusting screw inward number of turns previously recorded. If necessary, readjust idle speed. See IDLE SPEED.

CAUTION: DO NOT adjust Swift DOHC throttle stop screw to adjust idle. Throttle stop screw is factory-set, and is used as zero reference point for all other adjustments.

TPS Inspection (Swift DOHC)

Unplug TPS connector. Using ohmmeter, check resistance with selected shim thickness gauges between throttle stop screw and throttle lever. See Figs. 12 and 13. See THROTTLE POSITION SENSOR (TPS) RESISTANCE table. If TPS cannot be adjusted to obtain correct values at terminals "C" and "D", replace TPS.

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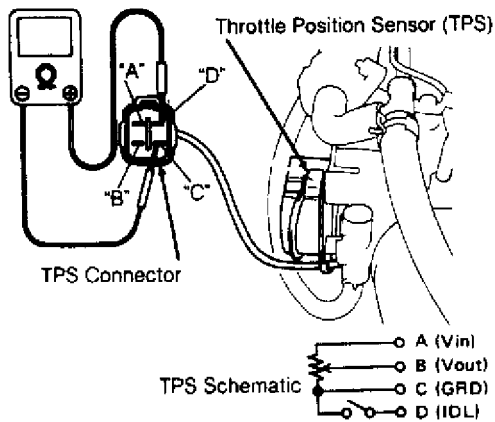


Fig. 12: Throttle Position Sensor (TPS) Terminal ID (Swift DOHC)
Courtesy of Suzuki of America Corp.

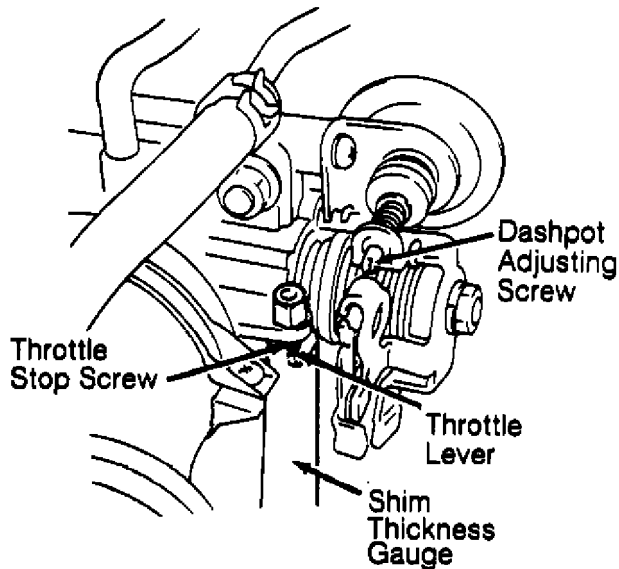


Fig. 13: Inserting Shim Thickness Gauge (Swift DOHC)
Courtesy of Suzuki of America Corp.

TPS Adjustment (Swift DOHC)

1) Unplug TPS connector, and loosen TPS mounting screws. Place a .025" (.63 mm) shim thickness gauge between throttle lever and throttle stop screw. See Fig. 13.

2) Connect ohmmeter between terminals "C" and "D". See Fig. 12. Turn TPS fully clockwise, and then slowly rotate TPS counterclockwise to locate position at which ohmmeter reading changes from zero to infinity. Holding TPS at that position, tighten mounting screws snug.

3) Ensure continuity does not exist between terminals "C" and "D" when 0.035" (0.90 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw.

4) Ensure continuity exists between terminals "C" and "D" when 0.012" (0.30 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw. Tighten TPS mounting screws to

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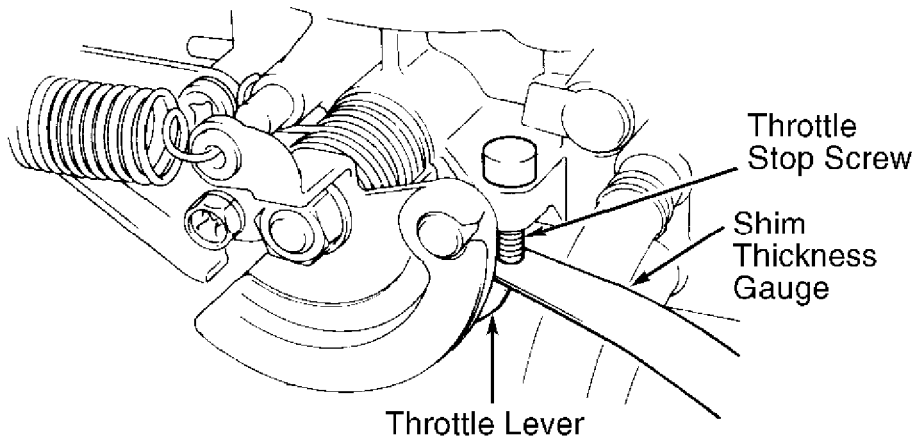
30 INCH lbs.(3.4 N.m).

5) If continuity is not as specified in steps 3) and 4), TPS zero adjustment is incorrect. Start adjustment sequence again. If results are the same after readjusting, replace TPS. After final adjustment is completed, reconnect TPS connector.

CAUTION: DO NOT adjust Swift SOHC throttle stop screw to adjust idle. Throttle stop screw is factory-set, and is used as zero reference point for all other adjustments.

TPS Inspection (Swift SOHC)

Unplug TPS connector. Using ohmmeter, check resistance between terminals of TPS connector with proper shim thickness gauge inserted between throttle lever and throttle stop screw. See Figs. 14 and 15. See THROTTLE POSITION SENSOR (TPS) RESISTANCE table.



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Fig. 14: Inserting Shim Thickness Gauge (Sidekick MPI & Swift SOHC)
Courtesy of Suzuki of America Corp.

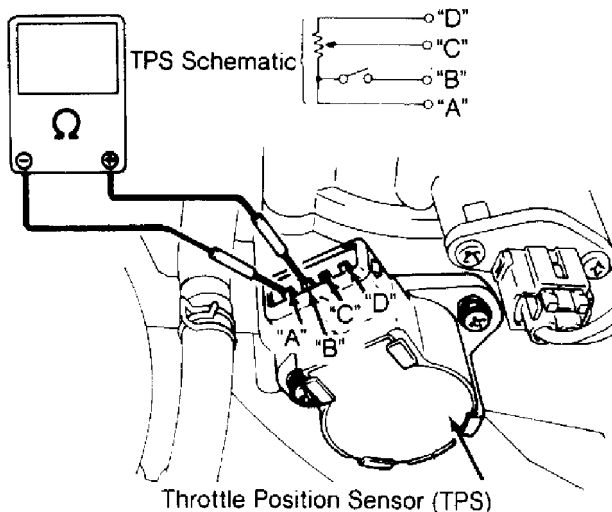


Fig. 15: Throttle Position Sensor (TPS) Term. ID (Swift SOHC Shown; Sidekick MPI Is Similar)
Courtesy of Suzuki of America Corp.

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TPS Adjustment (Swift SOHC)

1) Unplug TPS connector, and loosen TPS mounting screws. Insert .024" (.60 mm) shim thickness gauge between throttle lever and throttle stop screw. Connect ohmmeter between TPS terminals "A" and "B". See Fig. 15.

2) Turn TPS fully counterclockwise. Turn TPS clockwise to locate position ohmmeter reading changes from zero to infinity. Holding TPS at that position, tighten TPS mounting screws snug.

3) Ensure continuity does not exist between terminals "A" and "B" when 0.035" (0.90 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw.

4) Ensure continuity exists between terminals "A" and "B" when 0.012" (0.30 mm) shim thickness gauge is inserted between throttle lever and throttle stop screw. Tighten TPS mounting screws to 18 INCH lbs.(2.0 N.m).

5) If continuity is not as specified in steps 3) and 4), TPS zero adjustment is incorrect. Start adjustment sequence again. If results are the same after readjusting, replace TPS. After final adjustment is completed, reconnect TPS connector.

POWER STEERING VSV

Disconnect VSV connector, and check resistance between terminals. If resistance is not 33-39 ohms, replace VSV. If resistance is 33-39 ohms, disconnect vacuum hoses from 3-way joints. Blow into top hose. Air should not come out of other hose. With 12 volts and ground applied to terminals, blow into top hose. Air should pass through hoses. If results are not as described, replace VSV.

END OF ARTICLE