

D - ADJUSTMENTS

Article Text

1993 Mazda 929

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ARTICLE BEGINNING

1993 ENGINE PERFORMANCE
Mazda On-Vehicle Adjustments

B2200, B2600i, Miata, MPV, MX-3,
MX-6, Navajo, Protege, RX7, 323, 626, 929

ENGINE MECHANICAL

Before performing any on-vehicle adjustments to fuel or ignition systems, ensure engine mechanical condition is okay.

VALVE CLEARANCE

NOTE: All piston engines are equipped with hydraulic valve lash adjusters. No adjustments are required.

IGNITION TIMING

NOTE: Before adjusting ignition timing, warm engine to normal operating temperature. Turn off all accessories. Place transmission in Neutral (M/T) or Park (A/T). Ensure idle speed is correct. See IDLE SPEED under IDLE SPEED & MIXTURE. If timing is not within specification, loosen distributor or Crank Angle Sensor (CAS) lock bolt (Miata only). Rotate distributor or CAS until timing marks are aligned. Tighten lock bolt.

B2200 & B2600i

On B2200 (PFI) and B2600i, connect jumper wire between ground and Green test connector in right rear corner of engine compartment. See Fig. 2. On all models, connect timing light. Set timing to specification. See IGNITION TIMING SPECIFICATIONS table. See Fig. 1. On B2200 (PFI) and B2600i, remove jumper wire.

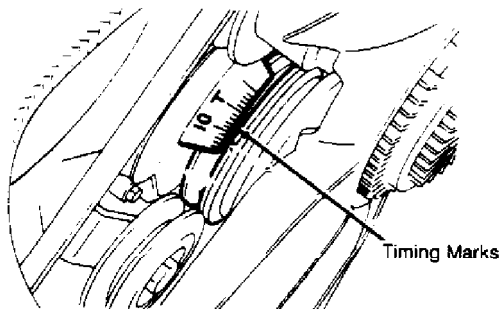


Fig. 1: Locating Ignition Timing Marks (Typical)
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Case Die Number

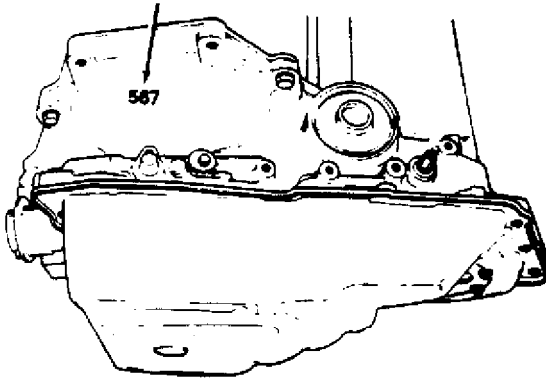


Fig. 2: Locating Green Test Connector (B2200 & B2600i)
Courtesy of Mazda Motors Corp.

NOTE: On Miata, use Blue 1-pin connector near airflow meter as a source of battery power for positive lead of tachometer or timing light (battery is in trunk). DO NOT ground this connector, or 20-amp WIPER fuse will blow.

Miata, MX-3, MX-6, Protege, RX7, 323, 626 & 929

1) Connect Diagnostic Tester (49 B019 9A0) to diagnostic connector and select SELF-TEST mode (position 1), or connect jumper wire between diagnostic connector terminals TEN and GND. See Fig. 3.

2) Connect timing light. Set timing to specification (except RX7). See IGNITION TIMING SPECIFICATIONS table. See Fig. 1. On RX7, if ignition timing is not within specifications, see TROUBLE SHOOTING -NO CODES and appropriate SELF-DIAGNOSTICS articles. Disconnect diagnostic tester or jumper wire from diagnostic connector.

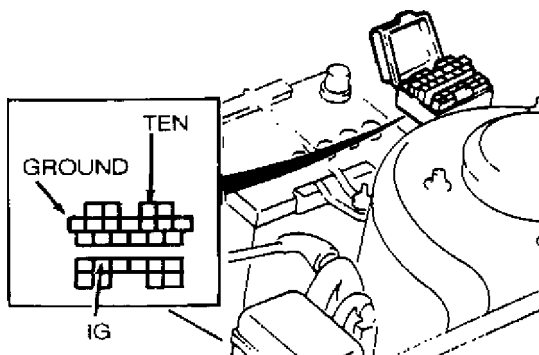


Fig. 3: Diagnostic Connector Terminal ID (Miata, MX-3, MX-6, Protege, RX7, 323, 626 & 929)
Courtesy of Mazda Motors Corp.

MPV

Connect jumper wire between ground and Green test connector in left front corner of engine compartment. See Fig. 4 or 5. Connect timing light. Set timing to specification. See IGNITION TIMING SPECIFICATIONS table. See Fig. 1. Remove jumper wire.

Navajo

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1) Engine is equipped with a distributorless ignition. Base (initial) timing is preset at 10 degrees BTDC and is not adjustable. To check base timing, turn ignition off.

2) Disconnect SPOUT in-line connector in Yellow/Light Green wire near Ignition Control Module (ICM), in right front corner of engine compartment. Start engine.

3) Connect timing light and check timing. If ignition timing is not at 10 degrees BTDC, see TROUBLE SHOOTING - NO CODES and appropriate SELF-DIAGNOSTICS articles. Turn off engine. Connect SPOUT in-line connector.

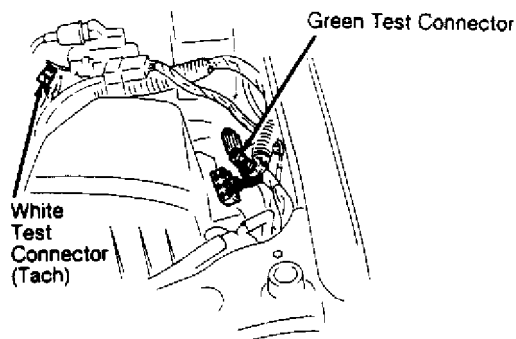


Fig. 4: Locating Green & White Test Connectors (MPV 2.6L)
Courtesy of Mazda Motors Corp.

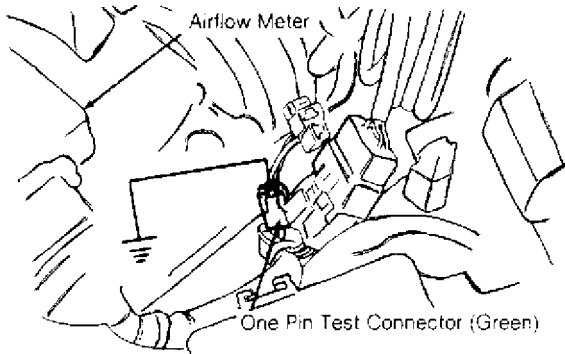


Fig. 5: Locating Green Test Connector (MPV 3.0L)
Courtesy of Mazda Motors Corp.

IGNITION TIMING SPECIFICATIONS TABLE (Degrees BTDC @ RPM)

AA

Application Man. Trans. (1) Auto. Trans.

B2200

Carbureted	6 @ 825	6 @ 825
PFI (2)	6 @ 750	6 @ 770
B2600i (2)	5 @ 750	5 @ 770
Miata (3)	10 @ 850	8 @ 850

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MPV					
2.6L (2)	N/A	5 @	770
3.0L (2)	N/A	11 @	800
MX-3					
1.6L (3)	10 @	750	10 @ 750
1.8L (3)	10 @	670	10 @ 670
MX-6 & 626					
2.0L (3)	.....	12 @	700	.....	12 @ 700
2.5L (3)	.....	10 @	650	.....	10 @ 650
Navajo	.....	(4)	.....	(4)	
Protege					
DOHC (3)	.....	10 @	750	.....	10 @ 750
SOHC (3)	.....	5 @	750	.....	5 @ 750
RX7					
Leading (3)	.....	(5) 5 @	725	.....	(5) 5 @ 725
Trailing (3)	.....	(5) 20 @	725	.....	(5) 20 @ 725
323 (3)	.....	7 @	750	.....	7 @ 750
929 (3)	.....	N/A	.....	12 @	700

- (1) - Place automatic transmission in Park.
- (2) - Connect jumper wire between Green test connector and ground.
- (3) - Connect jumper wire between terminals TEN and GRN of diagnostic connector.
- (4) - Base (initial) timing is preset at 10 degrees BTDC and is not adjustable.
- (5) - Timing specification is AFTER TDC and is not adjustable.

AA

IDLE SPEED & MIXTURE

NOTE: Mixture adjustment is NOT a normal tune-up procedure. DO NOT adjust mixture unless mixture control unit is replaced or vehicle fails emissions test.

CHOKE

B2200 (Carbureted)

Apply about 16 in. Hg to choke pull-off diaphragm. Lightly push the choke plate to closed position. Measure clearance between top of choke plate and air horn. If clearance is not .067-.085" (1.70-2.16 mm), bend lever on choke plate shaft until clearance is within specification.

COLD (FAST) IDLE SPEED

NOTE: For adjustments of the choke unloader, fast idle cam (static adjustment) and secondary throttle valve, see information in N - REMOVE/INSTALL/OHAUL article.

B2200 (Carbureted)

1) Warm engine to normal operating temperature. Turn off engine. Disconnect and plug vacuum hoses to idle compensator and reed valves. Hold throttle valve slightly open. Push choke plate fully closed. Release throttle valve.

2) Remove pressure from choke plate. Start engine without touching accelerator pedal or throttle valve. If engine speed is not 3000-4000 RPM, turn fast idle screw until within specification.

COLD (FAST) IDLE SPEED

RX7

1) With engine cold, ensure roller near screw "B" is centered on fast idle cam. See Fig. 6. Warm engine to operating temperature. At 130-149°F (55-65°C), wax rod should extend fully and fast idle cam should separate from roller. If wax rod does not operate as described, replace wax rod or adjust separation point.

2) Turn screw "B" until separation point is as described in step 1). See Fig. 7. To adjust fast idle cam opening, turn screw "A". Using screw "A", align points on fast idle cam with roller at corresponding temperature. See FAST IDLE CAM OPENING SPECIFICATIONS (RX7) table.

FAST IDLE CAM OPENING SPECIFICATIONS TABLE (RX7)

Temperature °F (°C)		Position
-5 (-20)	.....	"A"
32 (0)	.....	"B"
77 (25)	.....	"C"
140 (60)	.....	"D"

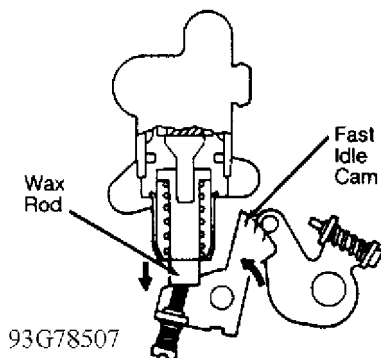


Fig. 6: Checking Fast Idle Cam Separation (RX7)
Courtesy of Mazda Motors Corp.

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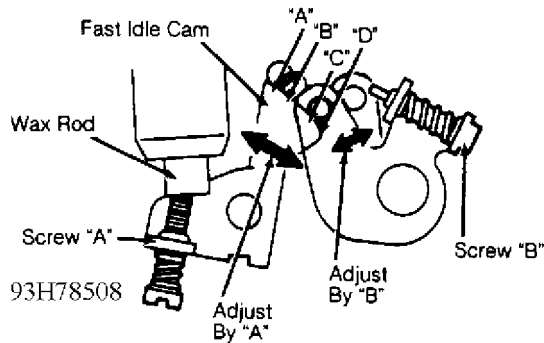


Fig. 7: Adjusting Fast Idle Cam Opening (RX7)
Courtesy of Mazda Motors Corp.

DASHPOT

NOTE: Before adjusting dashpot, warm engine to normal operating temperature. Turn off all accessories. Place transmission in Neutral (M/T) or Park (A/T).

B2200 (Carbureted M/T)

Slowly increase engine RPM until throttle lever separates from dashpot. If engine speed is not 2700-2900 RPM when throttle lever separates from dashpot, loosen lock nut and adjust dashpot as necessary. Tighten lock nut.

Miata, MPV 3.0L, MX-3 1.6L, Protege, RX7 & 323

Operate engine at 4000 RPM. Slowly decrease engine RPM until throttle lever contacts dashpot. If engine RPM is not as specified when throttle lever contacts dashpot, loosen lock nut and adjust dashpot as necessary. See DASHPOT SPECIFICATIONS table. Tighten lock nut.

DASHPOT SPECIFICATIONS TABLE

Application		RPM
B2200 (Carbureted M/T)	.....	2700-2900
Miata	.....	2350-2650
MPV (3.0L)	.....	3200-3800
MX-3 (1.6L)	.....	About 3000
Protege		
DOHC	.....	About 3500
SOHC	.....	About 2700
RX7	.....	2600-3000
323	.....	About 3000

IDLE SPEED

NOTE: Before adjusting idle speed, warm engine to normal operating

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temperature. Turn off all accessories. Place transmission in Neutral (M/T) or Park (A/T). Ensure ignition timing is adjusted. See IGNITION TIMING.

B2200 (Carbureted)

Connect tachometer to negative side of ignition coil primary circuit (White wire). Ensure choke is fully open and throttle valve lever is not resting on fast idle cam. If idle speed is not 825 RPM, turn idle speed adjusting screw on carburetor until within specification.

B2200 (PFI) & B2600i

Connect jumper wire between ground and Green 1-pin test connector in right rear corner of engine compartment. See Fig. 2. Connect tachometer to negative side of ignition coil primary circuit (White wire). If idle speed is not within specification, rotate idle air adjusting screw on throttle body. See IDLE SPEED SPECIFICATIONS table. Disconnect jumper wire.

NOTE: On Miata, use Blue 1-pin connector near airflow meter as a source of battery power for positive lead of tachometer or timing light (battery is in trunk). DO NOT ground this connector, or 20-amp WIPER fuse will blow.

Miata, MX-3, MX-6, Protege, 323, 626 & 929

1) Connect Diagnostic Tester (49 B019 9A0) to diagnostic connector and select SELF-TEST mode, or connect jumper wire between diagnostic connector terminals TEN and GND. See Fig. 3. Connect tachometer to diagnostic connector terminal IG (-).

2) If idle speed is not within specification, rotate idle air adjusting screw on throttle body. See IDLE SPEED SPECIFICATIONS table. Disconnect jumper wire.

MPV

1) Connect jumper wire between ground and Green 1-pin test connector in left front corner of engine compartment. See Fig. 4 or 5. On 2.6L, connect tachometer to White 1-pin test connector in left front corner of engine compartment. On 3.0L, connect tachometer to test connector at ignition coil (White wire).

2) On all models, if idle speed is not within specification, rotate idle air adjusting screw on throttle body. See IDLE SPEED SPECIFICATIONS table. Disconnect jumper wire.

NOTE: On Navajo, idle speed is computer controlled and is not adjustable. However, use the following initial throttle angle adjustment procedure (minimum air rate setting) as a basis for diagnosing idle speed problems or if throttle stop screw has been incorrectly set.

Navajo

1) Ensure the following conditions exist: throttle bore, throttle plate and Idle Speed Control (ISC) air by-pass valve are free

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of contamination, oxygen sensor is free of contamination and is operating, throttle stop lever is resting against throttle stop screw, no vacuum leaks are present, cooling system is full, and ignition timing is set to specification.

2) Perform a thorough basic inspection and Self-Test (KOEO, KOER and continuous memory) to confirm operation of sub-systems which may contribute to idle speed control problems. See appropriate information in G - TESTS W/ CODES article.

3) With engine off, disconnect negative battery cable for at least 5 minutes. Connect negative battery cable. Start engine and allow idle speed to stabilize for 2 minutes. Snap throttle open and return to idle. Lightly press and release accelerator. Turn engine off. Disconnect ISC air by-pass solenoid.

NOTE: If engine RPM fluctuates during idle, throttle plate may be open enough to allow canister purge flow. To verify this condition, disconnect and plug canister purge line. If purge is present, close throttle plate until fluctuations stop.

4) Start engine. Operate engine at 2500 RPM for 30 seconds. Allow engine to idle for 2 minutes. Turn throttle stop screw until engine idles at 675 RPM.

5) Turn off engine. Repeat step 4). Turn off engine. Disconnect negative battery cable for at least 5 minutes. Connect ISC air by-pass solenoid connector. Connect negative battery cable. Verify throttle plate is not stuck in bore and linkage is not preventing throttle stop lever from contacting throttle stop.

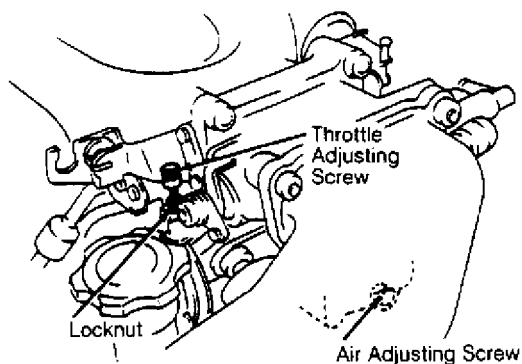
6) Start engine and allow to idle for 2 minutes. Snap throttle open and return to idle. Lightly press and release accelerator. Allow engine to idle. If engine does not idle properly, see H - TESTS W/O CODES article.

RX7

1) Connect Diagnostic Tester (49 B019 9A0) to diagnostic connector and select SELF-TEST mode (position 1), or connect jumper wire between diagnostic connector terminals TEN and GND. See Fig. 3. Connect tachometer to diagnostic connector terminal IG (-).

2) If idle speed is not within specification, rotate air adjusting screw on throttle body. See Fig. 8. See IDLE SPEED SPECIFICATIONS table. If idle speed is too high with air adjusting screw closed, turn throttle adjusting screw. Disconnect jumper wire.

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Fig. 8: Adjusting Idle Speed (RX7)
 Courtesy of Mazda Motors Corp.

IDLE SPEED SPECIFICATIONS TABLE

AA			
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- (1) - Place automatic transmission in Park.
- (2) - Connect jumper wire between Green test connector and ground.
- (3) - Connect jumper wire between terminals TEN and GND of diagnostic connector.
- (4) - Idle speed is not adjustable; however, throttle angle (minimum air rate) can be set using special procedure.

AA

IDLE MIXTURE

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B2200 (Carbureted)

1) Check for presence of mixture screw roll pin. See Fig. 9. If roll pin has already been removed, go to next step. If roll pin is present, remove air cleaner and carburetor. Drive out mixture screw roll pin. Install carburetor.

2) Install air cleaner. Ensure idle compensator valve is closed. Warm engine to normal operating temperature. Connect dwell meter (on 4-cylinder setting) between ground and mixture check connector (Brown/Yellow wire). See Fig. 10.

3) Adjust idle speed to 825 RPM. Turn mixture adjusting screw until dwell reading is 27-45 degrees. Reset idle speed (if necessary). Replace mixture roll pin after adjustment. If mixture cannot be adjusted to specification, see H - TESTS W/O CODES article.

Except B2200 (Carbureted)

Air/fuel mixture is computer controlled and cannot be manually adjusted. If CO level is excessive, see H - TESTS W/O CODES article.

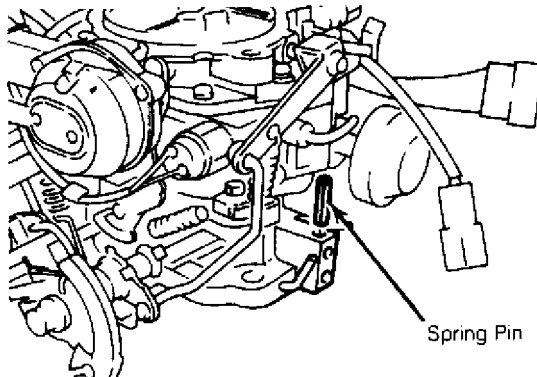


Fig. 9: Removing Carburetor Mixture Screw Roll Pin (B2200 Carbureted)
Courtesy of Mazda Motors Corp.

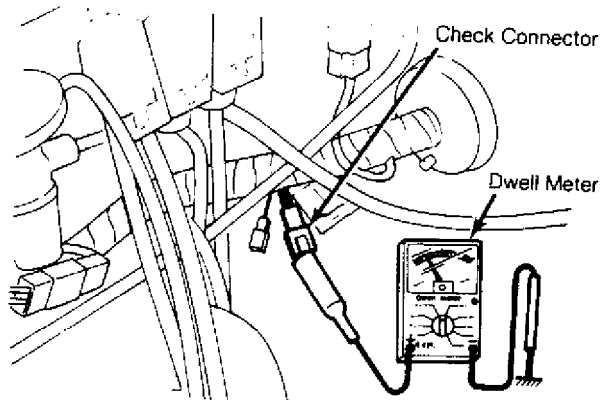


Fig. 10: Connecting Dwell Meter To Mixture Check Connector
(Brown/Yellow Wire)-(B2200 Carbureted)
Courtesy of Mazda Motors Corp.

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THROTTLE POSITION (TP) SENSOR

B2200 (CARBURETED)

See B2200 (CARBURETED) under THROTTLE (IDLE) SWITCH.

B2200 PFI, B2600i & MPV 2.6L

Inspection & Adjustment

1) Warm engine to normal operating temperature. Remove throttle body air inlet hose. Disconnect TP sensor connector. Install Test Harness (49 G018 901) between TP sensor and harness.

2) Turn ignition on. Ensure throttle valve is fully closed. Using a voltmeter capable of measuring voltage variations of .01 volt, measure voltage at Red and Black wires of test harness. See Fig. 11.

3) If voltage is 4.5-5.5 volts at Red wire and about zero volts at Black wire, go to next step. If voltage values are not as specified, check battery voltage and wiring harness between Electronic Control Unit (ECU) and TP sensor. If battery voltage and harness are okay, replace ECU.

4) Record voltage at Red wire. Measure voltage at Blue wire of test harness while varying throttle from closed to wide open position. Ensure voltage is within specification and voltmeter indicates a smooth voltage transition as throttle goes from closed to wide open position. See TP SENSOR VOLTAGE (B2200 PFI, B2600i & MPV 2.6L) table.

5) If voltage is not as specified, loosen TP sensor screw. Rotate TP sensor until Blue wire voltage is as specified. Tighten TP sensor screw. If TP sensor cannot be adjusted to specification, replace TP sensor. Disconnect negative battery cable and apply brake pedal for 5 seconds to erase ECU memory.

6) If voltage is as specified, turn ignition off. Disconnect test harness. Reconnect TP sensor connector. Disconnect negative battery cable and apply brake pedal for 5 seconds to erase ECU memory.

TP SENSOR VOLTAGE (B2200 PFI, B2600i & MPV 2.6L)

[illegible]

Red Wire Voltage	Blue Wire Voltage	Blue Wire Voltage
	Closed Throttle	Wide Open Throttle

4.50-4.59	.....	.37-.54	.....	3.58-4.23
4.60-4.69	.....	.38-.55	.....	3.66-4.32
4.70-4.79	.....	.39-.56	.....	3.74-4.41
4.80-4.89	.....	.40-.57	.....	3.82-4.51
4.90-4.99	.....	.40-.58	.....	3.90-4.60
5.00-5.09	.....	.41-.60	.....	3.97-4.70
5.10-5.19	.....	.42-.61	.....	4.05-4.79
5.20-5.2943-.62	4.13-4.88
5.30-5.3944-.63	4.21-4.98
5.40-5.4944-.64	4.29-5.07
5.5044-.66	4.29-5.17

[illegible]

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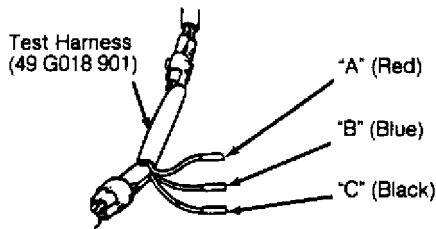


Fig. 11: TP Sensor Test Harness Terminal ID (B2200 PFI, B2600i & MPV 2.6L)

Courtesy of Mazda Motors Corp.

MIATA A/T, MX-3 1.6L A/T & 1.8L,

PROTEGE A/T, 323 A/T, MX-6 2.5L & 626 2.5L

Inspection

1) Disconnect TP sensor connector. Connect ohmmeter between TP sensor connector terminals "E" and IDL. See Fig. 12. Insert feeler gauge of specified thickness between throttle lever and throttle stop screw. See TP SENSOR CONTINUITY (MIATA A/T, MX-3 1.6L A/T & 1.8L, PROTEGE A/T, 323 A/T, MX-6 2.5L & 626 2.5L) table.

2) If continuity is not as specified, adjust TP sensor. See ADJUSTMENT procedure. If continuity is as specified, connect ohmmeter between TP sensor connector terminals Vt and "E". If resistance is less than 1000 ohms with throttle fully closed and about 5000 ohms with throttle wide open, TP sensor is adjusted. If resistance is not as specified, adjust TP sensor. See ADJUSTMENT procedure.

NOTE: If ohmmeter reading indicates a rough transition anywhere in range between lowest and highest readings, TP sensor potentiometer is faulty. Replace TP sensor.

Adjustment

1) Disconnect TP sensor connector. Connect ohmmeter between TP sensor connector terminals "E" and IDL. See Fig. 12. Loosen TP sensor attaching screws.

2) Insert a .006" (.15 mm) feeler gauge (MX-3 1.8L, MX-6 2.5L and 626 2.5L) or .010" (.25 mm) feeler gauge (all other models) between throttle lever and throttle stop screw. Rotate TP sensor clockwise about 30 degrees, then rotate counterclockwise until ohmmeter indicates continuity.

3) Remove feeler gauge. Insert a .020" (.50 mm) feeler gauge (MX-3 1.8L, MX-6 2.5L and 626 2.5L) or .016" (.40 mm) feeler gauge (all other models) between throttle lever and throttle stop screw. If ohmmeter indicates no continuity, go to next step. If ohmmeter indicates continuity, repeat adjustment procedure.

4) Tighten TP sensor attaching screws. Open throttle valve fully and verify resistance between terminals "E" and Vt is about 5000 ohms.

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NOTE: TP sensor on MX-6 2.0L and 626 2.0L is not adjustable.

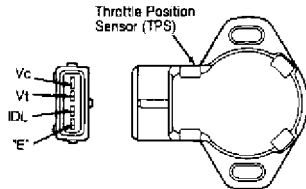


Fig. 12: TP Sensor Connector Terminal ID (Miata A/T, MX-3 1.6L A/T & 1.8L, Protege A/T, 323 A/T, MX-6 2.5L & 626 2.5L)
 Courtesy of Mazda Motors Corp.

TP SENSOR CONTINUITY (MIATA A/T, MX-3 - 1.6L A/T & 1.8L, PROTEGE A/T, 323 A/T, MX-6 2.5L & 626 2.5L)

Test Condition (1) (2) Continuity

MX-3 1.8L, MX-6 2.5L & 626 2.5L

.006" (.15 mm)	Yes
.020" (.50 mm)	No
All Others	
.004" (.10 mm)	Yes
.024" (.60 mm)	No

- (1) - Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.
 (2) - Check continuity with ohmmeter connected between TP sensor terminals "E" and IDL.

MIATA, MX-3 1.6L, PROTEGE & 323 - M/T

Inspection

1) Disconnect TP sensor connector. Insert feeler gauge of specified thickness between throttle lever and throttle stop screw. See TP SENSOR CONTINUITY (MIATA, MX-3 1.6L, PROTEGE & 323 - M/T) table.

2) Connect ohmmeter between specified terminals of TP sensor connector. See Fig. 13. If continuity is not as specified, adjust TP sensor. See ADJUSTMENT procedure.

Adjustment

1) Disconnect TP sensor connector. Connect ohmmeter between terminals IDL and TL/E of TP sensor connector. See Fig. 13. Insert a .016" (.41 mm) feeler gauge between throttle lever and throttle stop screw.

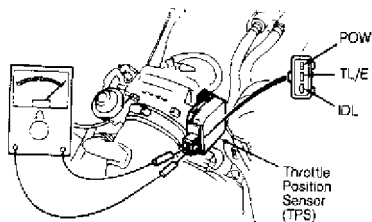
2) Loosen TP sensor screws. Rotate TP sensor clockwise about 30 degrees, then rotate counterclockwise until ohmmeter indicates continuity.

3) Remove feeler gauge. Insert a .027" (.69 mm) feeler gauge between throttle lever and throttle stop screw. If ohmmeter indicates no continuity, go to next step. If ohmmeter indicates continuity,

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repeat adjustment procedure.

4) Tighten TP sensor attaching screws. Open throttle valve fully a few times. Recheck TP sensor adjustment.



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Fig. 13: TP Sensor Connector Terminal ID (Miata, MX-3 1.6L, Protege & 323 - M/T)
 Courtesy of Mazda Motors Corp.

TP SENSOR CONTINUITY (MIATA, MX-3 1.6L, PROTEGE & 323 - M/T) TABLE

AA

Test	Continuity	Continuity
Condition	Between IDL & TL/E	Between POW & TL/E

Miata		
.016" (.41 mm) (1)	Yes	No
.027" (.7 mm) (1)	No	No
WOT	No	Yes
MX-3 1.6L, Protege & 323		
.004" (.10 mm) (1)	Yes	No
.039" (1.0 mm) (1)	No	No
WOT	No	Yes

(1) - Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.

AA

MPV 3.0L & 929

Inspection

Disconnect TP sensor connector. Using an ohmmeter, measure resistance between specified terminals of TP sensor connector. See TP SENSOR RESISTANCE (MPV 3.0L & 929) table. See Fig. 14 or 15. If resistance is not as specified, adjust TP sensor. See ADJUSTMENT procedure.

Adjustment

1) Insert a feeler gauge of specified thickness between throttle lever and throttle stop screw. See TP SENSOR ADJUSTMENT (MPV 3.0L & 929) table. Check continuity between TP sensor connector terminals "C" and "D". See Fig. 14 or 15.

2) If continuity is not as specified, loosen TP sensor mounting screws. Rotate TP sensor until continuity is as specified. Tighten mounting screws. Connect TP sensor connector.

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TP SENSOR RESISTANCE (MPV 3.0L & 929) TABLE

Application		Ohms
MPV 3.0L		
Between Terminals "A" & "D"	3000-6000
Between Terminals "B" & "D"	.....
Closed Throttle	.....	About 1000 Or Less
Wide Open Throttle	.....	3000-6000
929		
Between Terminals "A" & "D"	.....	3000-6000
Between Terminals "B" & "D"	.....
Closed Throttle	.....	200-600
Wide Open Throttle	.....	3300-7000

TP SENSOR ADJUSTMENT TABLE (MPV 3.0L & 929)

Test Condition (1)	Continuity Between Terminals "C" & "D"
MPV 3.0L	
.020" (.5 mm)	Yes
.028" (.7 mm)	No
929	
.004" (.1 mm)	Yes
.008" (.2 mm)	No

(1) - Insert feeler gauge of specified thickness between throttle lever and throttle stop screw.

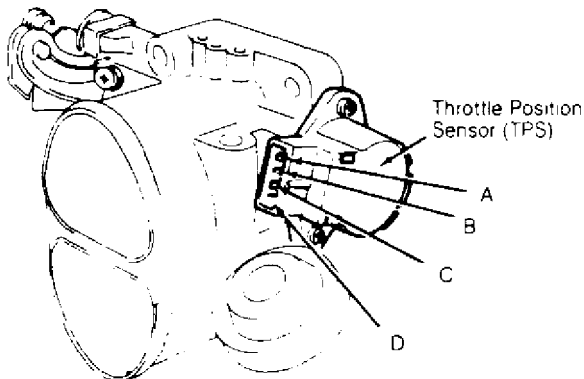


Fig. 14: Identifying TP Sensor Terminals (MPV 3.0L)
 Courtesy of Mazda Motors Corp.

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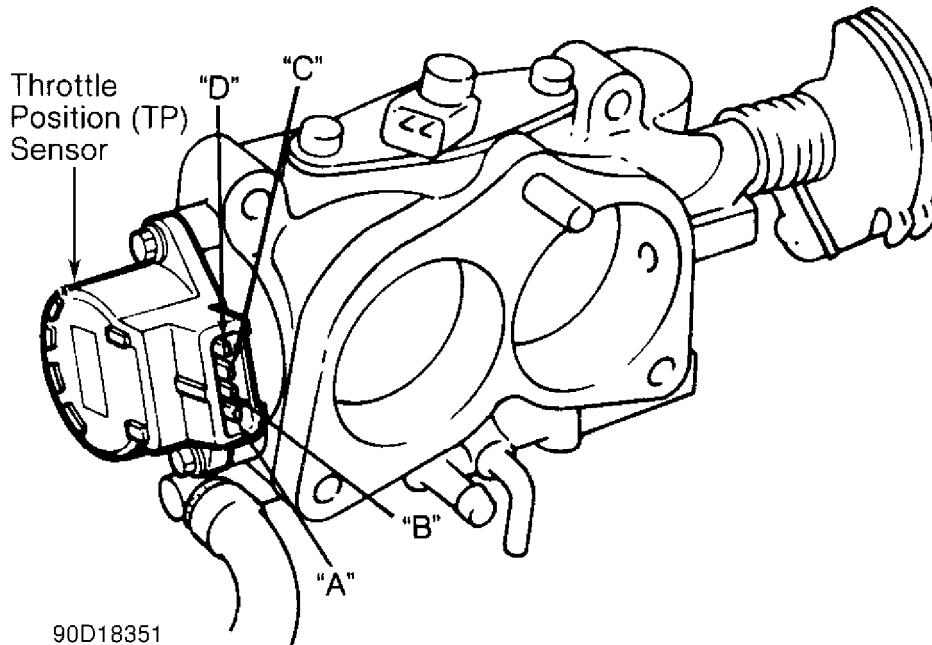


Fig. 15: Identifying TP Sensor Terminals (929)
Courtesy of Mazda Motors Corp.

NAVAJO

NOTE: TP sensor is not adjustable. Replace TP sensor if voltage readings are not within specification.

1) Ensure throttle linkage is not preventing throttle stop lever from contacting throttle stop screw. Disconnect Electronic Control Assembly (ECA) 60-pin connector. Inspect connector for damaged pins, corrosion or loose wires and repair as necessary.

2) Connect Breakout Box (T83L-50-EEC-IV) between ECA and ECA harness. Connect digital voltmeter positive lead to pin No. 47 and negative lead to pin No. 46 of breakout box.

3) Turn ignition on. Observe voltmeter while slowly moving throttle between fully closed and wide open positions. Voltage should be .60 volt with throttle fully closed and about 4.50 volts throttle fully open.

4) If voltages values are not as specified, ensure throttle angle (minimum air rate) is correct. See IDLE SPEED under IDLE SPEED & MIXTURE. If throttle angle is correct, remove TP sensor.

5) Check for damaged, corroded or misadjusted pins. If pins are okay, install TP sensor. Check voltage readings again. If voltage readings are not as specified, perform KOEO self-test. See information G - TEST W/ CODES article. If KOEO self-test indicates no problems, replace TP sensor.

RX7

Inspection & Adjustment

1) Turn ignition off. Connect Harness Adapter (49 F018 902)

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and Signal Monitor (49 9200 162) to vehicle. See Fig. 16. Turn ignition on. Manually rotate throttle lever, and check TP sensor signal. See TP SENSOR VOLTAGE (RX7) table.

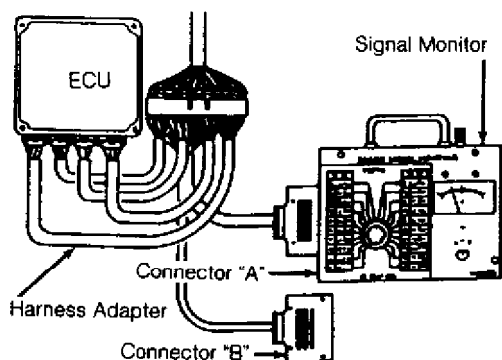
2) If voltage is not within specification, close throttle. Loosen TP sensor screws, and rotate TP sensor. See Fig. 17. Recheck TP sensor signal. Turn ignition off. Disconnect test equipment. Disconnect negative battery cable and depress brake pedal for 20 seconds. Reconnect negative battery cable.

TP SENSOR VOLTAGE TABLE (RX7)

AA			
Wire Color	Closed Throttle		Wide Open Throttle
To Ground	Volts		Volts
Green/Red (3F) (1)75-1.25	4.8-5.0
Black/Green (3G) (1)	0.7-1.0	4.2-4.6

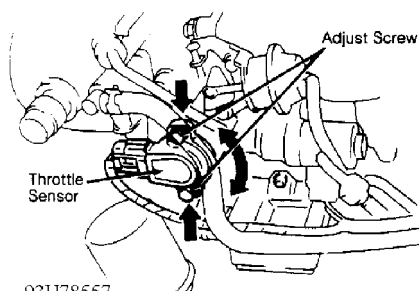
(1) - PCM terminal pin No. in parentheses.

AA



93G78556

Fig. 16: Checking TP Sensor Voltage Signal (RX7)
 Courtesy of Mazda Motors Corp.



93H78557

Fig. 17: Adjusting TP Sensor (RX7)
 Courtesy of Mazda Motors Corp.

THROTTLE (IDLE) SWITCH

B2200 (CARBURETED)

1) Warm engine to operating temperature. Connect tachometer. Operate engine at idle. Using voltmeter, backprobe Light Green/Red wire terminal of idle switch connector. See Fig. 18.

2) Increase engine speed to more than 2000 RPM. Gradually decrease engine speed. If voltage is not as specified in THROTTLE SWITCH VOLTAGE TEST (B2200 CARBURETED) table, turn idle switch adjusting screw until voltage is within specification.

THROTTLE SWITCH VOLTAGE TEST TABLE (B2200 CARBURETED)	
AAAAAA	AAAAAA
RPM	Volts
825 (Idle)	About 12
1000-1250	Less Than 1.5
AAAAAA	AAAAAA

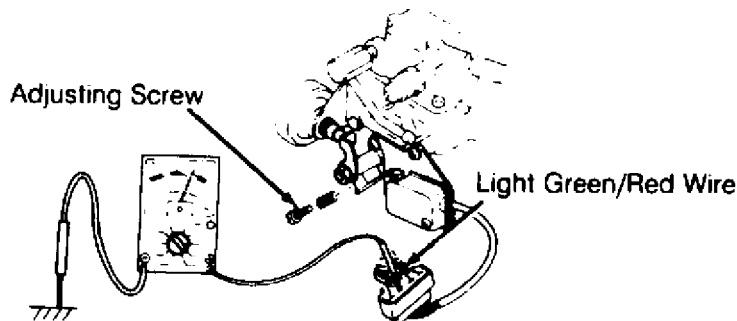


Fig. 18: Adjusting Throttle Switch (B2200 Carbureted)
Courtesy of Mazda Motors Corp.

EXCEPT B2200 (CARBURETED)

Throttle switch is either a part of TP sensor, which is adjusted automatically when TP is adjusted, or a separate, nonadjustable switch on throttle body. See THROTTLE POSITION (TP) SENSOR.

END OF ARTICLE