

D - ADJUSTMENTS

1993 Mitsubishi Montero

1993 ENGINE PERFORMANCE
Chrysler Corp./Mitsubishi On-Vehicle Adjustments

Dodge; Ram-50
Mitsubishi; Montero, Pickup

ENGINE MECHANICAL

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

VALVE CLEARANCE

NOTE: These models use hydraulic lash adjusters and do not require periodic valve adjustment.

VALVE ADJUSTMENT

CAUTION: DO NOT rotate crankshaft in opposite direction of normal engine rotation.

CHECKING HYDRAULIC VALVE LIFTERS

1) Warm engine to normal operating temperature. Remove valve cover. Position cylinder No. 1 at TDC on compression stroke. Check intake rockers on cylinders No. 1 and 2. Check exhaust rockers on cylinders No. 1 and 3.

2) Push downward on end of rocker arm above lash adjuster. Rotate crankshaft 360 degrees and check intake rockers on cylinders No. 3 and 4. Check exhaust rockers on cylinders No. 2 and 4. If lash adjuster is normal, it will feel solid.

3) If lash adjuster moves downward easily when pushed, replace adjuster. If lash adjuster feels soft or spongy, air has probably entered lash adjuster. If this occurs, check engine oil level. If engine oil level is okay, check oil screen and oil screen gasket for damage.

4) After repairing cause of air leak, warm engine to operating temperature. Drive vehicle at low speed for approximately 5 minutes. Turn engine off for a few minutes.

5) Restart engine and drive at low speed for approximately 5 minutes. Repeat this step several times for about one hour. This helps remove air from engine oil.

IGNITION TIMING

NOTE: Perform all adjustments with engine at normal operating temperature, cooling fan and accessories off, transmission in Park or Neutral, and front wheels in straight-ahead position.

NOTE: Adjustment of ignition timing cannot be performed on vehicles equipped with Distributorless Ignition Systems (DIS). If ignition timing is not within specification, see CRANKSHAFT POSITION SENSOR in I - SYS/COMP TESTS article in this section.

1) Locate ignition timing adjustment connector. See IGNITION TIMING ADJUSTMENT CONNECTOR LOCATION table. Connect jumper wire

between ignition timing adjustment connector and ground. Check ignition basic timing.

2) If ignition basic timing is not within specification, loosen distributor and rotate to adjust timing if necessary. See IGNITION TIMING SPECIFICATIONS table. Remove jumper wire from ignition timing adjustment connector.

IGNITION TIMING SPECIFICATIONS TABLE (Degrees BTDC @ RPM)

Application	(1) Basic	(2) (3) Actual
2.4L	3-7 @ 600-800	8 @ 600-800
3.0L		
Montero	3-7 @ 600-800	15 @ 600-800
Pickup & Ram-50 ...	3-7 @ 650-850	15 @ 650-850

- (1) - With ignition timing adjustment connector grounded or vacuum hose (farthest from distributor) disconnected.
- (2) - With ignition timing adjustment connector ungrounded or vacuum hose (farthest from distributor) connected. Ignition timing may fluctuate.
- (3) - If vehicle altitude is more than 2300 ft. above sea level, actual timing may be advanced.

IGNITION TIMING ADJUSTMENT CONNECTOR LOCATION

Application	(1) (2) Wire Color	Location
Montero	White/Yellow	(3)
Pickup & Ram-50		
2.4L	Black/Blue	(4)
3.0L	White/Yellow	(4)

- (1) - Remove waterproof female connector (if equipped) for access to wire.
- (2) - Ground connector at wire end for basic timing adjustment.
- (3) - On main wiring harness, near wiper motor on firewall.
- (4) - Near left rear corner of engine compartment, below cruise control actuator (if equipped).

IDLE SPEED & MIXTURE

NOTE: Perform adjustments with engine at normal operating temperature, cooling fan and accessories off, transmission in Park or Neutral, and front wheels in straight-ahead position.

CURB (SLOW) IDLE SPEED

NOTE: Curb idle speed is controlled by Idle Air Control (IAC) motor. Adjustment is usually not necessary. For curb idle speed specifications, see IDLE SPEED SPECIFICATIONS table under BASIC IDLE SPEED.

1) Check ignition timing and adjust if necessary. See IGNITION TIMING. Run engine at 2000-3000 RPM for more than 5 seconds. Allow engine to idle for 2 minutes. Check curb idle speed.

2) If curb idle speed is not within specification, check IAC system. See I - SYS/COMP TESTS article in this section. If IAC system

is okay, adjust basic idle speed. See BASIC IDLE SPEED.

BASIC IDLE SPEED

NOTE: ALWAYS check TPS adjustment after adjusting basic idle speed. See THROTTLE POSITION SENSOR (TPS).

NOTE: For Data Link Connector (DLC) location, see G - TESTS W/CODES article in this section.

NOTE: Ensure vehicle is at normal operating temperature with all lights, cooling fan and accessories off. Shift transmission into Neutral or Park position.

1) Insert paper clip or appropriate probe into tachometer connector. See TACHOMETER CONNECTOR LOCATION table. Connect a primary voltage detecting type tachometer to paper clip.

2) Connect a jumper wire between data link terminal No. 10 and vehicle ground. See Fig. 1. Connect a jumper wire between ignition timing adjustment connector and vehicle ground. See IGNITION TIMING ADJUSTMENT CONNECTOR LOCATION table under IGNITION TIMING.

3) Start and run engine at idle. Check basic idle speed. See IDLE SPEED SPECIFICATIONS table. If idle speed is not within specifications, turn engine speed adjusting screw until correct engine speed is obtained. See Fig. 2. Access to speed adjusting screw is obtained by removing rubber plug on throttle body.

4) If idle speed cannot be lowered by adjusting engine speed adjusting screw, determine if fixed speed adjusting screw (stop screw contacting throttle lever) has been adjusted. See FIXED SPEED ADJUSTING SCREW for procedure.

5) After all adjustments are verified correct, possible cause of incorrect idle speed is deterioration of fast idle air control motor. Throttle valve must be replaced to correct symptom. Disconnect jumper wires and recheck idle speed.

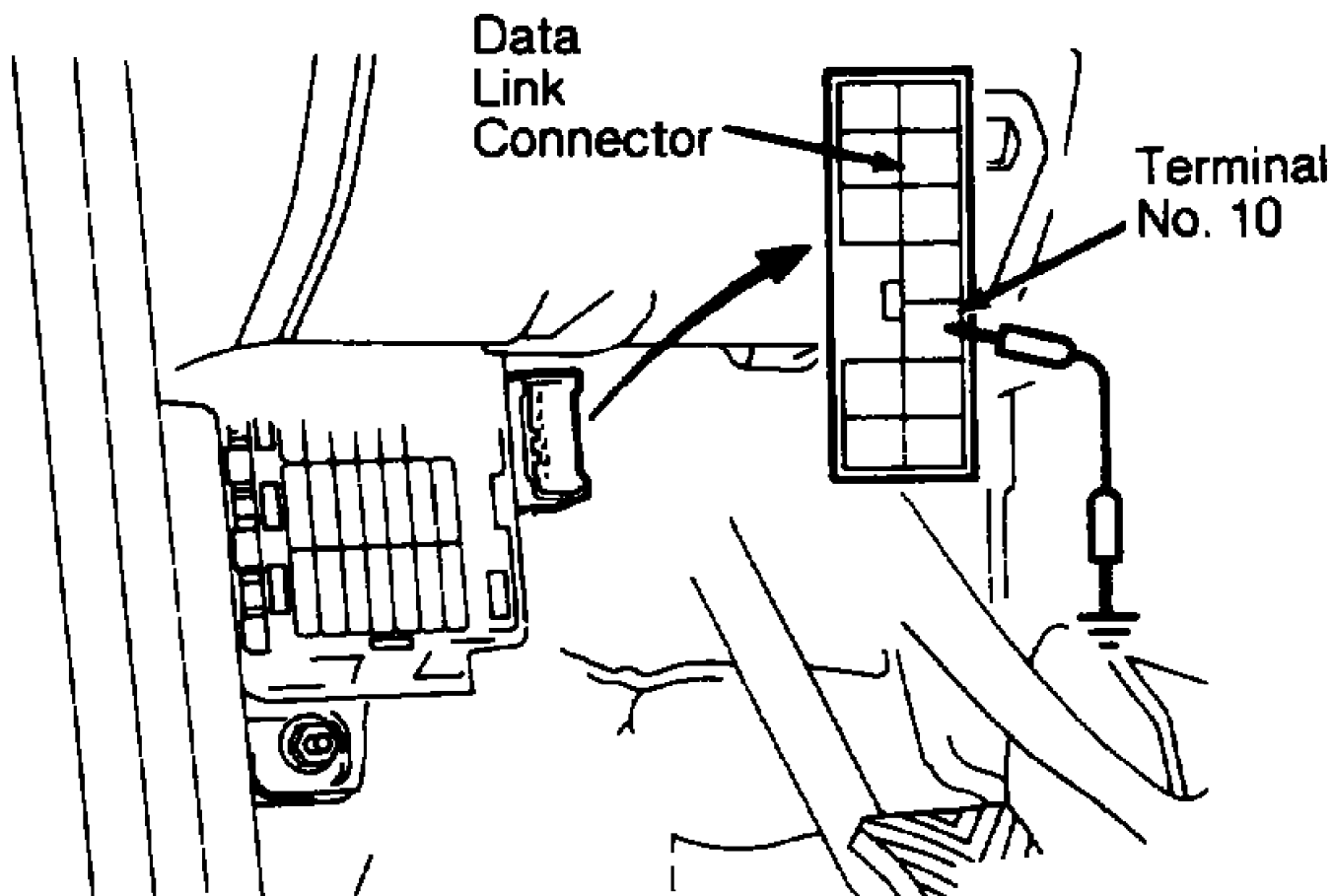
TACHOMETER CONNECTOR LOCATION TABLE

Application	Type	Location
3.0L	1-Pin	(1)
2.4L	1-Pin	(2)

- (1) - Backprobe connector to noise filter (White/Black wire) mounted on ignition coil bracket.
(2) - On main harness, on firewall to left of Vehicle Identification Plate.

IDLE SPEED SPECIFICATIONS TABLE

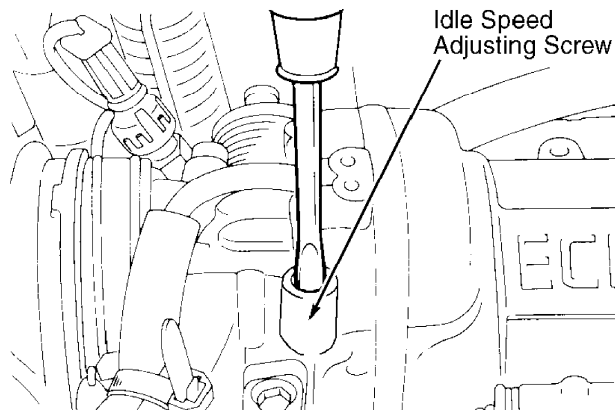
Application	Curb Idle	Basic Idle
2.4L	600-800	600-800
3.0L		
Montero	600-800	600-800
Pickup & Ram-50	650-850	650-850



12-PIN CONNECTOR

93E78133

Fig. 1: Locating Data Link Connector (Typical)
 Courtesy of Mitsubishi Motor Sales of America.



93F78134

Fig. 2: Adjusting Idle Speed (Typical)
 Courtesy of Mitsubishi Motor Sales of America.

FIXED SPEED ADJUSTING SCREW

NOTE: Fixed Speed Adjusting Screw (FSAS) is preset by manufacturer and usually does not require adjustment. Only adjust FSAS if other adjustment procedures require it, or if manufacturer's original setting has been changed.

(3.0L)

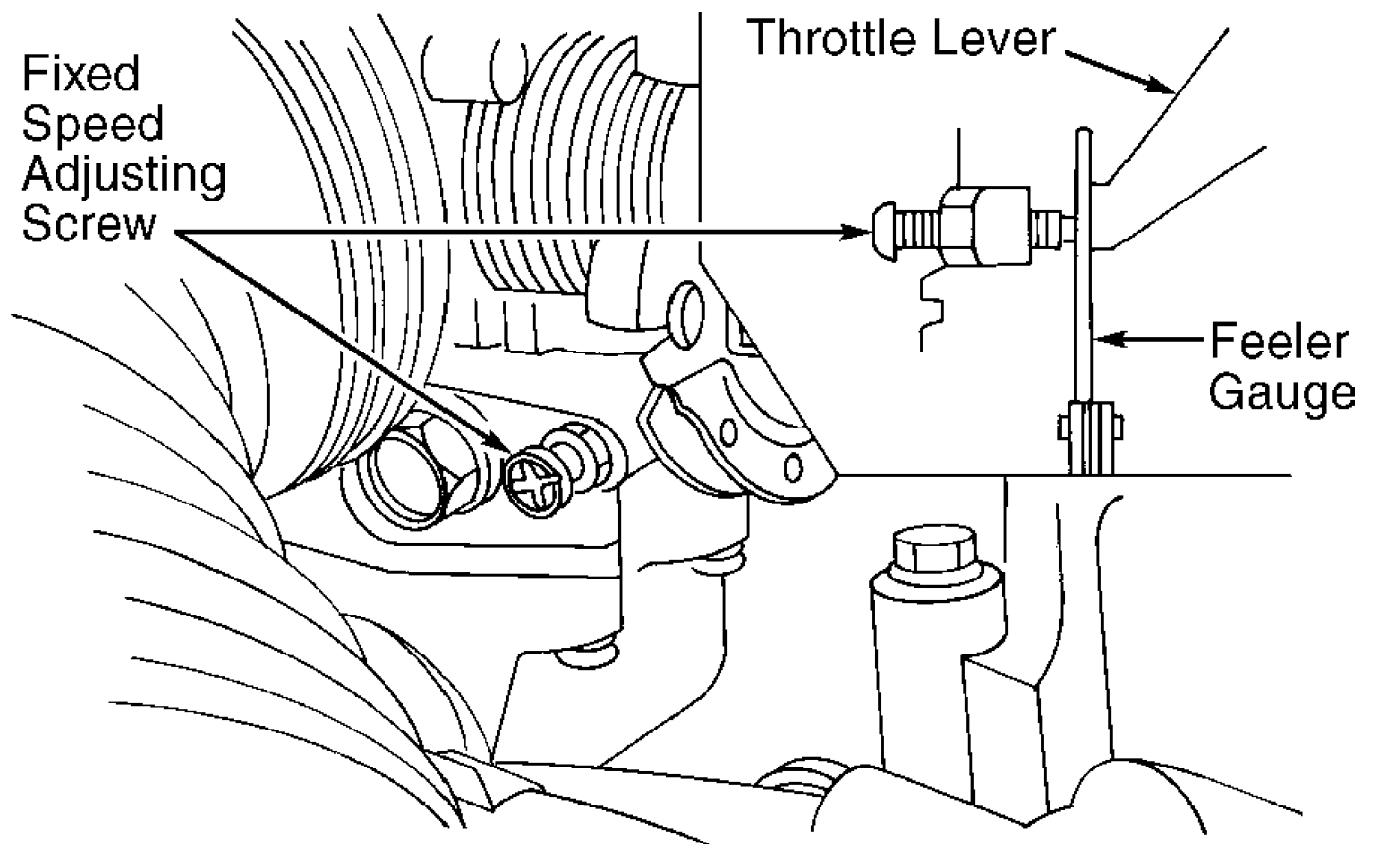
1) Loosen throttle cable. Loosen FSAS lock nut. See Fig. 3. Turn FSAS counterclockwise until throttle valve is fully closed. Turn FSAS clockwise until throttle valve begins to open. Turn FSAS clockwise 1 1/4 turns after throttle valve begins to open.

2) Tighten lock nut while holding FSAS in position. Adjust throttle cable. Adjust basic idle speed. See BASIC IDLE SPEED under IDLE SPEED & MIXTURE. Adjust throttle position sensor. See THROTTLE POSITION SENSOR (TPS).

NOTE: Eclipse 2.0L DOHC uses an idle position switch as the Fixed Speed Adjusting Screw (FSAS). For adjustment, see IDLE POSITION SWITCH under THROTTLE POSITION SENSOR (TPS).

(2.4L)

To adjust Fixed Speed Adjusting Screw (FSAS), adjust basic idle speed. See BASIC IDLE SPEED under IDLE SPEED & MIXTURE.



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Fig. 3: Adjusting Fixed Speed Adjusting Screw (Typical)
Courtesy of Mitsubishi Motor Sales of America.

IDLE MIXTURE

NOTE: Idle mixture is computer controlled on fuel injected engines and is nonadjustable. CO level specifications are not

available from manufacturer.

THROTTLE POSITION SENSOR (TPS)

TPS ADJUSTMENT

NOTE: Ensure basic idle speed is set to specification before adjusting TPS. See BASIC IDLE SPEED under IDLE SPEED & MIXTURE. Perform all adjustments with engine at normal operating temperature, front wheels in straight-ahead position, cooling fan and all accessories off, and transmission in Park or Neutral.

TPS SPECIFICATIONS TABLE

Application	(1) Volts
Pickup (3.0L), Ram-50 (2.4L)48-.52
Montero4-1.0

(1) - At idle.

Montero

1) Disconnect TPS connector. Using external ohmmeter, measure resistance between TPS terminals No. 1 and 2. See Fig. 4. Insert .256" (.65 mm) feeler gauge between fixed speed adjusting screw and throttle lever.

2) Loosen TPS mounting screws and rotate TPS fully clockwise. Ensure there is continuity between terminals No. 1 and 2. Rotate TPS counterclockwise until there is no continuity and tighten screws. Install Test Harness (MB991348) between TPS and harness connector.

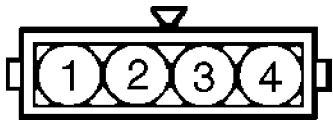
3) Turn ignition on. Using external voltmeter, measure TPS output voltage between terminals No. 1 and 3. See TPS SPECIFICATION table. If voltage is not within specifications, check harness and sensor. See I - SYS/COMP TESTS article in this section.

Pickup, Ram-50

1) Disconnect TPS connector. Using external ohmmeter, measure resistance between TPS terminals No. 3 and 4. See Fig. 4. Insert .256" (.65 mm) feeler gauge between fixed speed adjusting screw and throttle lever.

2) Loosen TPS mounting screws and rotate TPS fully clockwise. Ensure there is continuity between terminals No. 3 and 4. Rotate TPS counterclockwise until there is no continuity and tighten screws. Install Test Harness (MB991348) between TPS and harness connector.

3) Turn ignition on. Using external voltmeter, measure TPS output voltage between terminals No. 2 and 4. See TPS SPECIFICATIONS table. If voltage is not within specification, check harness and sensor. See I - SYS/COMP TESTS article in this section.



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Fig. 4: Identifying TPS Connector
Courtesy of Mitsubishi Motor Sales of America.

IDLE POSITION SWITCH

NOTE: Idle position switch is preset by manufacturer. Adjustment is usually not necessary. If other procedures require adjustment of idle position switch or if switch setting has been changed, adjust switch as follows.

Idle position switch is incorporated into IAC motor and is automatically adjusted when TPS is adjusted. See TPS ADJUSTMENT.