

Select Vehicle | New TSBs | Technician's Reference

Component Search: OK

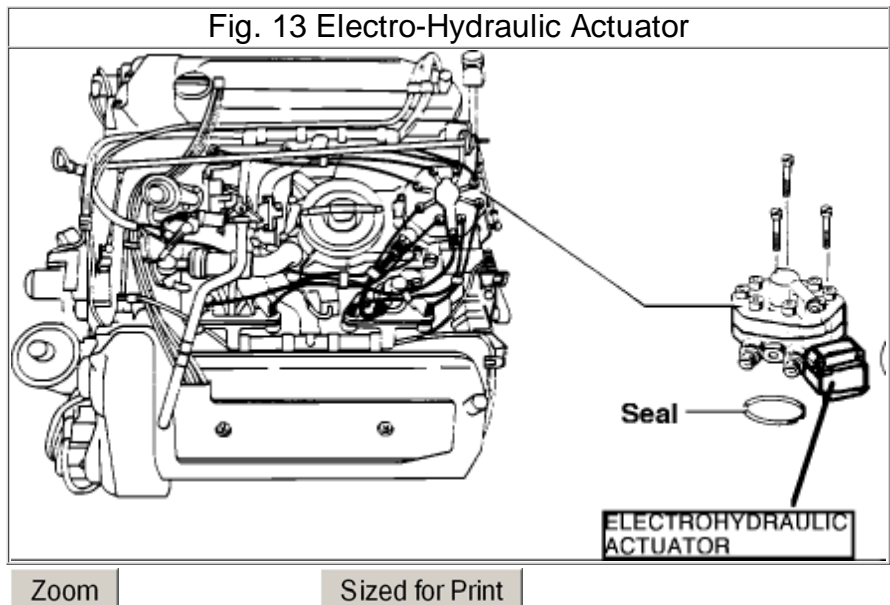
Conversion Calculator

1989 Mercedes Benz 420SEL (126 Chassis) V8-4196cc 4.2L SOHC (116)

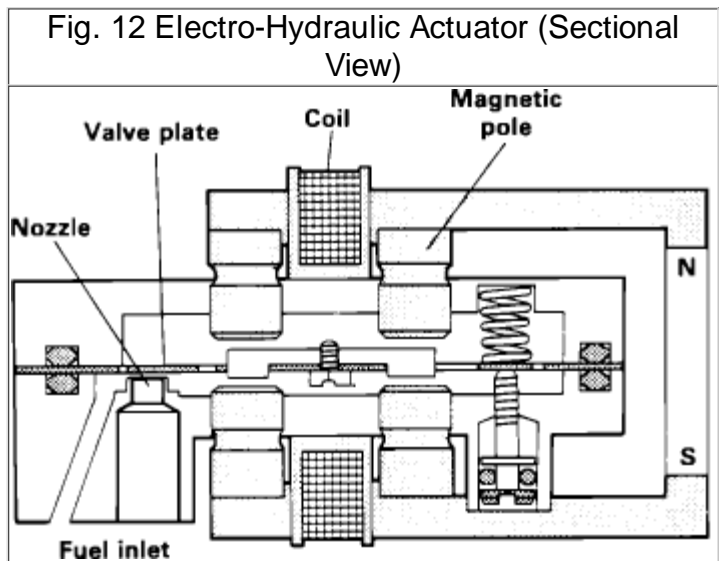
Vehicle Level → Powertrain Management → Fuel Delivery and Air Induction → Differential Pressure Regulator → Description and Operation ←

Description and Operation

[Notes](#)



The electro-hydraulic actuator is bolted to the side of the [fuel distributor](#). It consists of a plate valve fastened between two electromagnets.

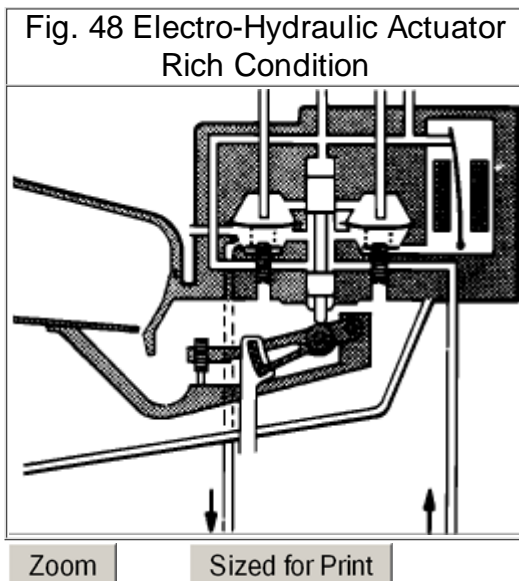


Zoom

Sized for Print

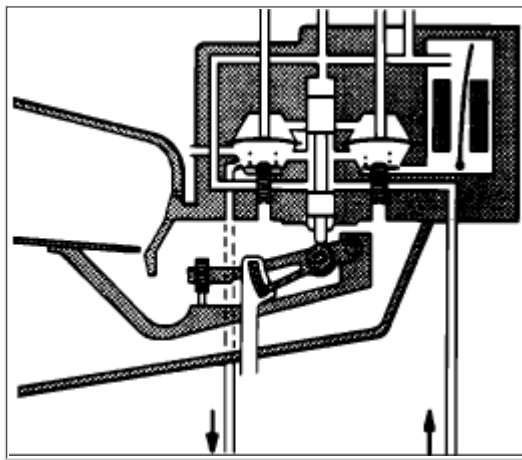
By varying the electric current to the electro-hydraulic actuator and changing the strength of the magnets, the plate valve can be moved. The varying position of the plate valve controls the quantity of fuel allowed into the lower chamber of the [fuel distributor](#), causing the differential pressure to vary. The operating range is from -50 to +150mA. Differential pressure will be from 0 bar to about 1.6 bar (24 PSI) less than system pressure.

The electro-hydraulic actuator is constructed so that without any operating current, such as in an electrical failure, the plate valve would deflect enough under system pressure to maintain a differential pressure of about 0.4 bar. This combined with the 0.2 bar difference caused by the pressure regulating springs in the [fuel distributor](#) will result in a difference of 0.2 bar between the upper and lower chambers in the fuel distributor. Since this pressure difference is the same as on the earlier CIS system, the car will still be driveable in the event of an electrical failure. However, it will run roughly because of the resultant lean [air/fuel mixture](#).



When the current supplied to the electro-hydraulic actuator is increased, the plate valve deflects to the left and restricts the flow of fuel to the lower chamber causing the pressure regulating valves to deflect downward. The result is increased fuel flow to the injectors and a richer air/fuel ratio.

Fig. 49 Electro-Hydraulic Actuator
Lean Condition

[Zoom](#)[Sized for Print](#)

When the current supplied to the electro-hydraulic actuator is reduced, the plate valve moves to the right and allows more fuel into the lower chamber. The pressure in the lower chamber increases and deflects the pressure regulating valves upward. The quantity of fuel to the injectors is consequently reduced resulting in a leaner [air/fuel mixture](#).

© 2008 ALLDATA LLC. All rights reserved.

[Terms of Use](#)

Select Vehicle | New TSBs | Technician's Reference

Component Search:

OK

Conversion Calculator

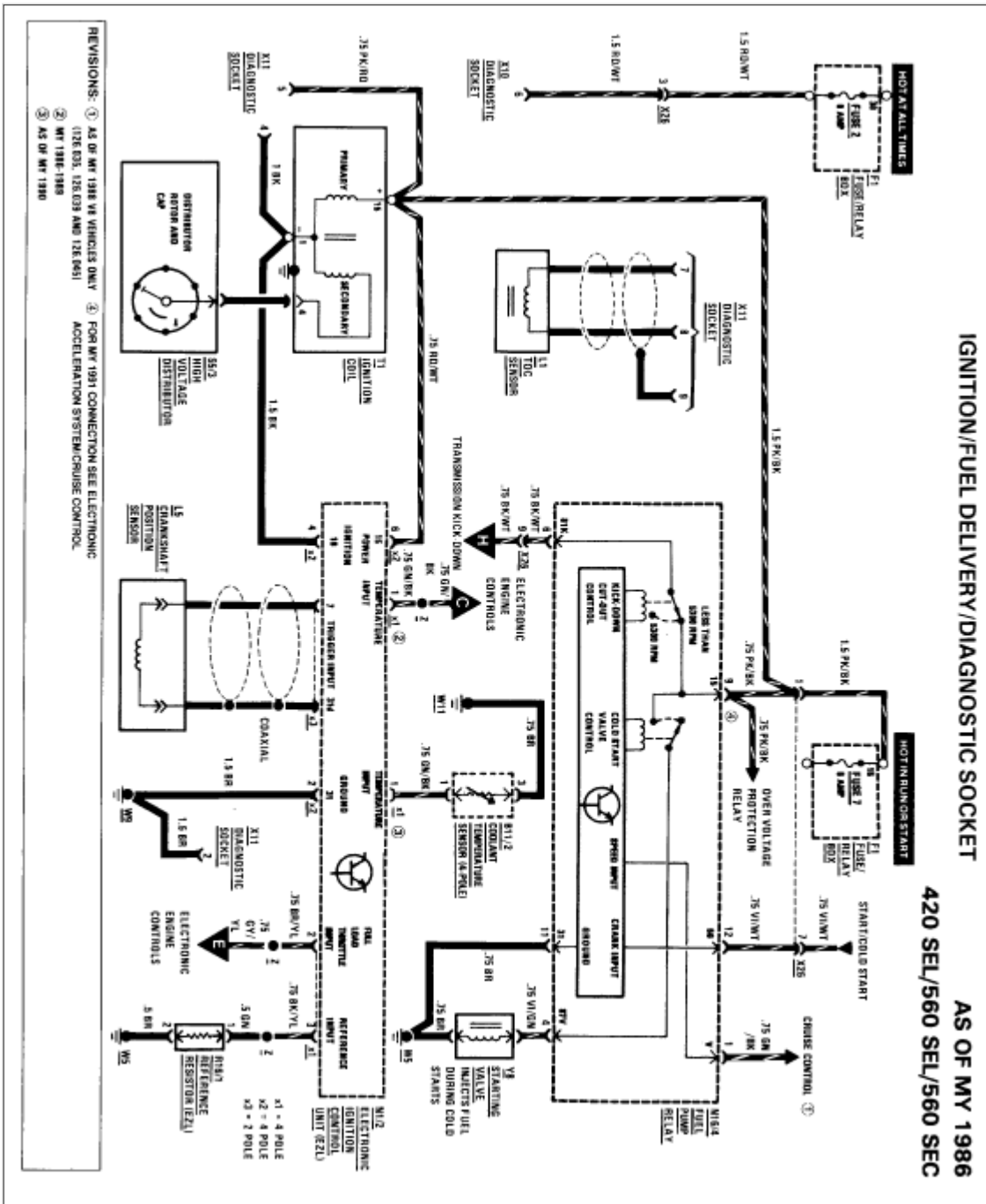
1989 Mercedes Benz 420SEL (126 Chassis) V8-4196cc 4.2L SOHC (116)

Vehicle Level → Powertrain Management → Diagrams → Electrical Diagrams → Ignition/Fuel Delivery/Diagnostic Socket

Ignition/Fuel Delivery/Diagnostic Socket

Electrical Diagrams

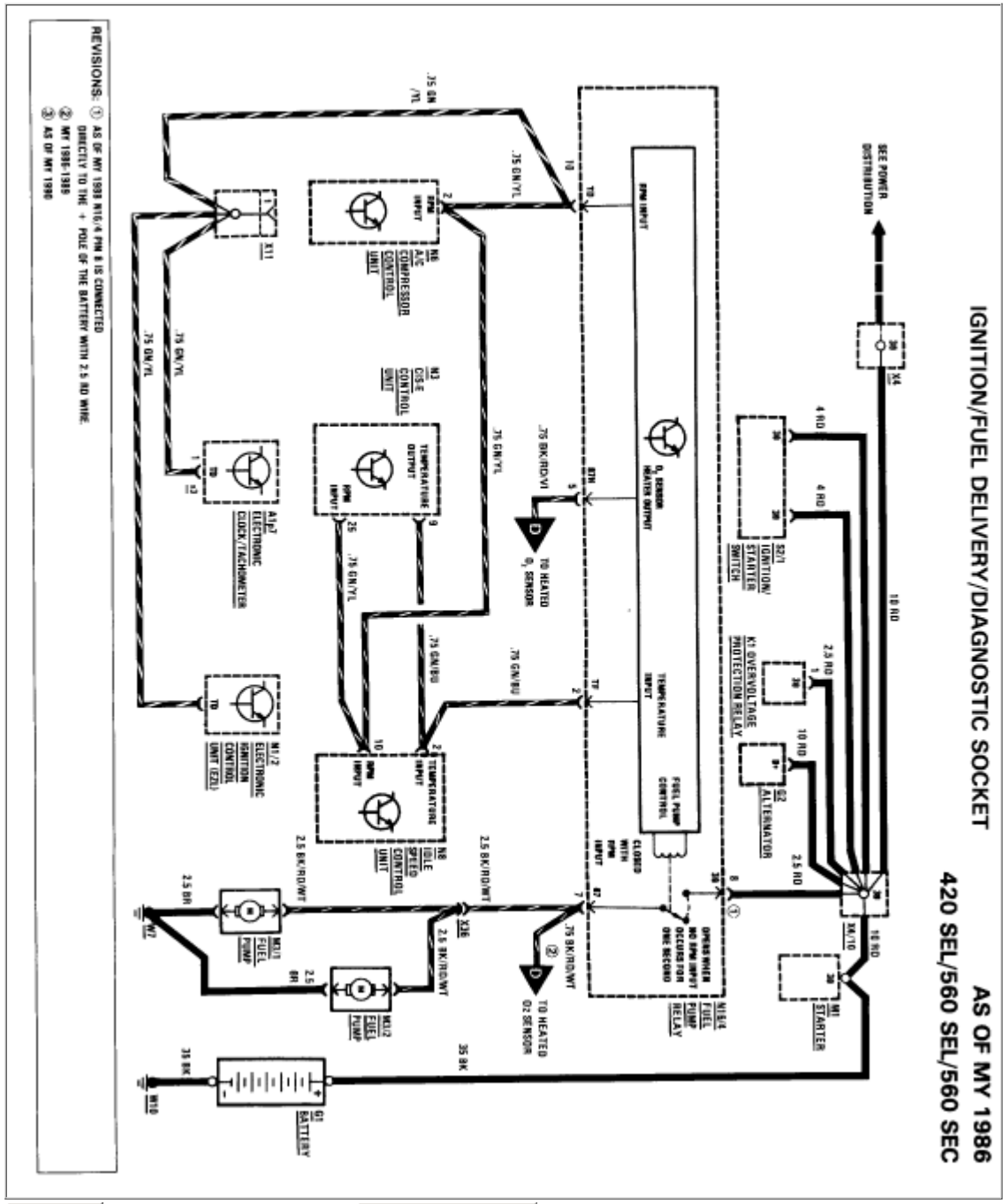
[Notes](#)



Zoom

Sized for Print

Notes



Zoom

Sized for Print

[Select Vehicle](#) | [New TSBs](#) | [Technician's Reference](#)

Component Search:

OK

[Conversion Calculator](#)**1989 Mercedes Benz 420SEL (126 Chassis) V8-4196cc 4.2L SOHC (116)**[Vehicle Level](#) → [Powertrain Management](#) → [Fuel Delivery and Air Induction](#) → [Air/Fuel Mixture](#) → [Adjustments](#) → [Adjusting the Air/Fuel Mixture](#) ←**Adjusting the Air/Fuel Mixture**[Notes](#)

- NOTE** a. Refer to **NOTES CONCERNING THE AIR/FUEL MIXTURE** and **CHECKING THE AIR/FUEL MIXTURE ADJUSTMENT** for tester connection locations and procedures prior to adjusting the idle air/fuel mixture.
- b. Adjustment procedure will require the use of on/off ratio tester (Bosch KDJE-P 600) or equivalent.
- c. Adjustments are to be performed after the engine has reached normal operating temperature.
- d. All accessories must be switched off.
- e. Engine must be in good mechanical working order and be free from electrical misfires.
- f. If after completing the adjustment procedures the correct On/Off Ratio can not be obtained refer to technical service bulletin #07318 in **TECHNICAL SERVICE BULLETINS** . Information concerning the possibility of internal fuel leakage within the CIS-E fuel distributor may lead to the remedy for the problem.

Fig. 70 Adjustment Tower Location



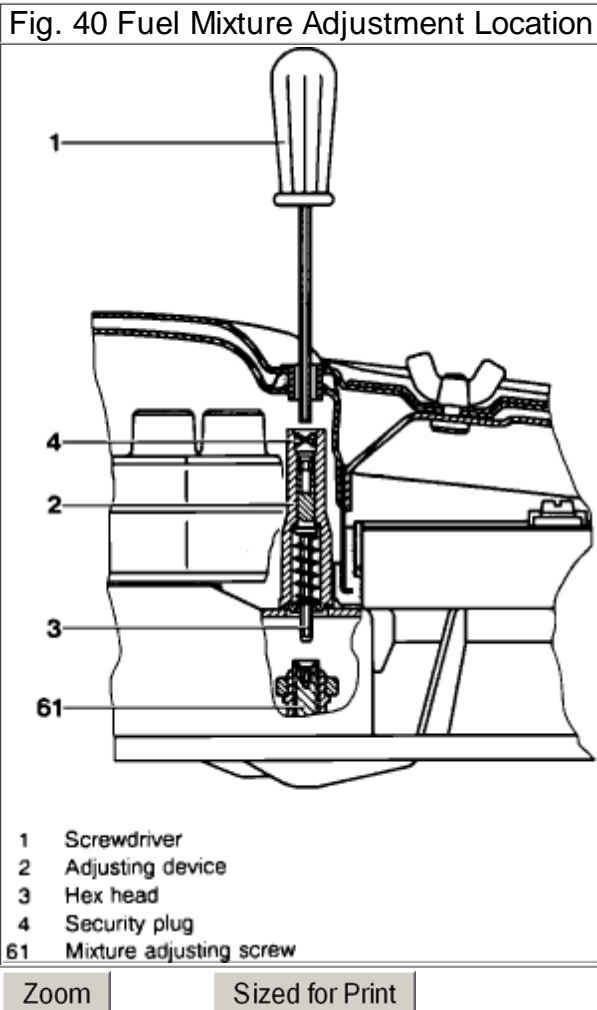
Zoom

Sized for Print

1. Remove the air cleaner and drill a hole approximately 6 - 8 mm (15/64-5/16 in.) deep with a 2.5 mm (3/32 in.) twist drill in each of the break away bolts on the adjustment tower. **CAUTION: Do Not Drill Through The Bolts As The Metal**

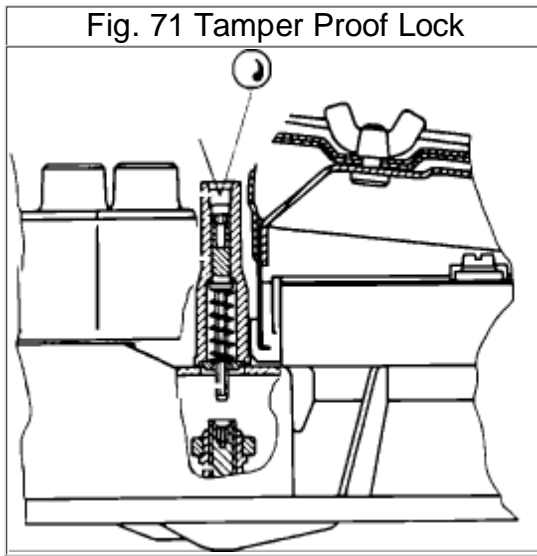
Chips May Cause Engine Damage. Thoroughly Remove The Metal Chips With A Cleaning Rag .

2. Unscrew the break away bolts with a left hand twist drill or a screw extractor and remove the adjustment tower.
3. Install a new adjustment tower kit.
4. Reinstall the air cleaner and start the engine.



5. Push the screwdriver through the recess in the top section of the air filter housing and onto the adjusting device.
6. Push the adjusting device down with the screwdriver against the spring force, and turn it slightly until the hex head engages in the air/fuel mixture adjusting screw.
 - Turn the air/fuel mixture adjusting screw counterclockwise for a leaner air/fuel mixture. The on/off ratio will increase.
 - Turn the air/fuel mixture adjusting screw clockwise for a richer air/fuel mixture. The on/off ratio will decrease.
7. After each adjustment snap the throttle slightly, then check for the variation between 2500 RPM and [idle speed](#) with the on/off ratio tester. The difference

- between the two readings should not vary by more than +10. Adjust as necessary.
8. Switch off the engine.
 9. Remove the air filter.



Zoom

Sized for Print

10. Knock in the steel tamper proof lock with an appropriate tool so that the lock is flush with, or deeper than, the bottom edge of the taper of the adjusting tower.
11. Reconnect the purge line to the purge valve.
12. Reinstall the air filter.
13. Start the engine, turn on accessories, and place the transmission selector in drive.
 - The engine should run smoothly at idle.



Select Vehicle | New TSBs | Technician's Reference

Component Search: OK

Conversion Calculator

1989 Mercedes Benz 420SEL (126 Chassis) V8-4196cc 4.2L SOHC (116)

Vehicle Level → Powertrain Management → Diagrams → Electrical Diagrams → Electronic Engine Controls/Air Injection Management ←

Electronic Engine Controls/Air Injection Management

Electrical Diagrams

[Notes](#)

