

# CONVERSION KIT INSTRUCTION SHEET – ENGLISH ONLY

## Rear Air Spring System on: 1992-2010 Ford Crown Victoria 1990-2009 Lincoln Town Car 1992-2010 Mercury Grand Marquis

- Read this instruction sheet and any instructions printed on the parts package carefully prior to removing the components from the vehicle.
  - Part number on shock or spring may differ from part number on carton. The contents are correct for the vehicle.
- W A R N I N G !**
- Before servicing any vehicles equipped with original air spring suspension, turn off the "air suspension switch" in the trunk area.
  - Do not attempt to remove the air spring from suspension if still containing air. Release the air from the spring before servicing.
  - If the shocks supplied are nitrogen gas pressurized, do not heat or open.
  - Always wear safety glasses for eye protection.
  - Use safety stands whenever a procedure requires you to be under a vehicle.

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This kit replaces the rear air springs on vehicles listed above. This will abort the air springs replacing them with conventional coil springs that provide a complete and thorough conversion plus disengages the pump system. The components in this kit are designed to replace the worn or non operational original equipment components in the vehicle. These coil springs are the same as the standard coil springs found on base model suspensions. If air springs have failed, but the air pump is still functional, it is suggested that replacement air springs are installed which will not abort the air system.

This conversion contains the necessary instructions to eliminate the electronic warning signals on some models.

From 1991-97 (all models) and 2000-10 Crown Victoria and Grand Marquis, the system is controlled control by a separate control module, with a diagnostic plug located in the trunk near the air system shutoff switch.

For 1998-99 (all models) and 2000-09 Lincoln Town Car, the separate electronic diagnostics plug was eliminated. On these vehicles diagnostic information runs through the main ECU which is accessed through the central data link connection (DLC) located under dash. On these systems the message center indicating "SERVICE AIR SUSPENSION" may or may **NOT** be eliminated be able to be eliminated. Follow the additional special instructions noted in Disable Section.

Inspect all original parts as removed from the cartons for correct quantity and damage. Obtain replacements when necessary.

### RIDE HEIGHT:

The original ride heights of these vehicles with vary by age and mileage. Measure and record original height, (measured from floor to wheel opening lip), which should be between 28½" and 29". This height is based on stock size tire set to manufactured recommended tire pressure. The

ride height could be considerably higher or lower if the air suspension is not functioning properly. After kit installation may be equal or exceed factory measurements, but will settle to factory specification after several days.

### REMOVAL PROCEDURE FOR SPRING and SHOCK ABSORBER:

1. Prior to lifting vehicle and removing wheels, turn "OFF" air suspension control switch, which is located on the left hand side of the luggage compartment in the trunk. Make sure that the ignition switch is to the OFF position.
2. Raise vehicle at proper lift points and remove wheels. (Consult Ford Owners Manual if necessary) and make sure the vehicle is properly supported.
3. Support the axle with hoist or adjustable lift/stands. Remove the shock absorber lower mounting bolts and save for reuse (if necessary). Lower axle down slightly, be sure NOT to stretch brake lines or ABS sensor wires.
4. (FIG 1) It is not necessary to remove the electrical connection or air line at this time, as the solenoids will be packaged and retained on vehicle. To remove solenoid valves and exhaust air from the springs, remove the clip from solenoid valve. Then rotate counter-clockwise to the first stop. This will allow the air in the spring and system to slowly exhaust.
5. (FIG 2) Rotate the solenoid valve to the second stop, and the air will exhaust quickly. All air must be released from system before removing solenoid. Rotate the solenoid to the third stop, and remove from the air spring housing. Retain the solenoid valves, as they will be retain on the vehicle. Again, do not remove solenoid from the vehicle as they will be secured and remain on the vehicle later in the procedure.
6. After the solenoid valves have been removed and all air is exhausted, disconnect the ride height sensor from the lower ball stud mount. The sensor will remain on the vehicle, secured to the upper frame cross member later in the procedure.
7. Lower the axle down to remove the air springs. Caution should be used not the stretch or bend brake lines/hoses or ABS sensor wires. The lower end of the spring has a retaining clip pushed into the inside diameter of the axle spring seat. Remove by either prying up the lower end of the spring, or by tapping on the retaining clip from the bottom side using a punch. Remove the spring retainer clip at the top of air spring, above upper spring seat. This will then allow for removal of the air springs from the vehicle.
8. If replacing the shock absorbers, remove the upper stem attachment and remove from vehicle. Discard properly using recycle methods for this type product.

### ASSEMBLY AND INSTALLATION OF COIL SPRING and SHOCK ABSORBER:

9. If replacing the shock absorbers, install the upper stem mounting attachment, and tighten securely.

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10. Install coil springs using the provided isolators on the upper end of the spring. If the coil spring is a variable rate design, install with the close coils toward top or frame seat.

11. Raise the axle assembly slightly after both springs installed and attach lower shock absorber mounting bolt. Make sure that the springs are secure and tight between the spring seats in suspension.

12. (FIG 3 thru FIG 5) Place the solenoid valves into a poly bag and seal end with electrical tape to keep clean. Secure these packages into the upper frame using cable ties, making sure location are away from the exhaust system. Attach the ride height sensor to one of the holes in the upper frame to hold secure at a central non activating point.

## DISABLING THE AIR SUSPENSION CONTROLS

This part of the procedure relates to the disabling the warning systems. There are different procedures for the Crown Victoria / Grand Marquis versus Town Car, review the model years. There are visual and/or audible warning signals which may NOT be able to be eliminated. However these will not harm the operation of the vehicle or conversion.

12. Make sure that the air system and ignition are OFF and disconnect battery ground.

13. The air suspension switch in the trunk area should still be in the OFF position, if not previously done.

14. Control Module location:

\* For 1991 thru 1994 ALL models, located in the truck area on either the back of rear seat or behind a trim panel on right side. Locate the black and gray connectors (1 each color).

\* For 1995 thru 1997 ALL models, located under the dash on the right side. Locate the black and gray connectors (1 each color).

\* For 1998 thru 1999 ALL models, uses vehicle ECU, no module items available to disconnect.

\* For 2000 thru 2010 Crown Victoria and Grand Marquis located under the dash on the right side. Locate the black and gray connectors (1 each color).

\* For 2000 thru 2009 Lincoln Town Car, uses vehicle ECU, no module items available to disconnect.

15. Disable Method and Warning Elimination (FIG 6) For Ford Crown Victoria and Mercury Grand Marquis

\* For 1992-1997; Dark Green/Light Green Strip

\* For 1998-1999; Not possible, follow 1998-2009 Town Car procedure

\* For 2000-2010; Dark Green/Light Green Strip

Disconnect the black connector from the module. The wire to pin no. 11 will need to be removed or cut for most model years to break continuity. This wire color code noted below for certain vehicles. Once this wire is removed from connector block or cut (if necessary), this will disable the "AIR SUSP" message indicator light.

Reconnect the black connector back into the control module.

For Lincoln Town Car

\* For 1991-1997; Dark Green/Light Green Strip

\* For 1998-2009; Not possible, no wire available to disconnect, must leave all items attached due to central data link connections (DLC). The air suspension module also controls the EVO steering module, thus system interconnection maintains message center information. With the system maintained to operate for other functions, the "SERVICE AIR SUSPENSION" message may still be activated.

For most of the vehicles with a message center, this can be eliminated by leaving the solenoid valves and ride height sensor attached. These are to be retained and packaged on the vehicle to complete the circuit for the system.

17. For the 1991 thru 1997 models: The air pump will have to be disconnected, unplug the electrical connection to prevent pump from running (if still functional). Do NOT remove the fuse for the pump, as its affects other items within the electrical system.

For 1998 thru 2010 models: The air pump will need to REMAIN plugged in to complete the circuit with all other items attached.

18. Reinstall battery ground and turn the air suspension switch ON when completed. The air system switch will affect other items within the electrical system.

## TROUBLESHOOTING

On all years, the trigger for the air suspension to operate is the switch for interior lights when a door is opened or closed. This activates a relay on board, which senses the changed position of the ride height sensor. Thus doors must be shut completely. If this switch is inoperable, error message of "AIR SUSPENSION" can occur.

On the 1998 thru 2010 Lincoln Town Car: If the "AIR SUSPENSION" message is illuminated, when ignition is turned ON, turn the ignition OFF. Open and close the door (all doors must be closed), then turn ignition back on. Message should be off. Again, the door switch activates the relay for the air system to operate.

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FIG 1, Layout of Rear Suspension

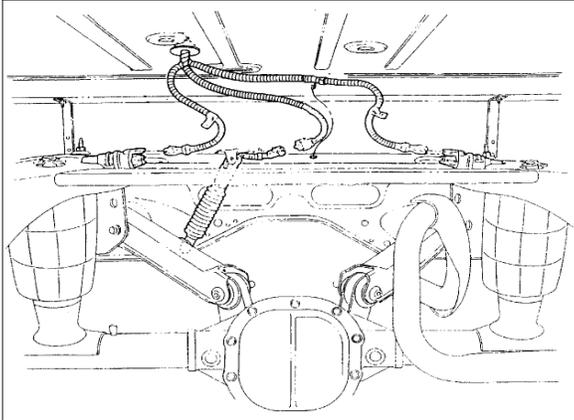


FIG 2, Solenoid Left Hand



FIG 3, Solenoids and Ride Height Sensor



FIG 4, Solenoid packaged and ready to tuck into frame pocket



FIG 5, Ride Height Sensor secured Solenoid Tucked



FIG 6, Pin connector for control module on 1991-1997 all models and 2000-2010 Crown Victoria & Grand Marquis

