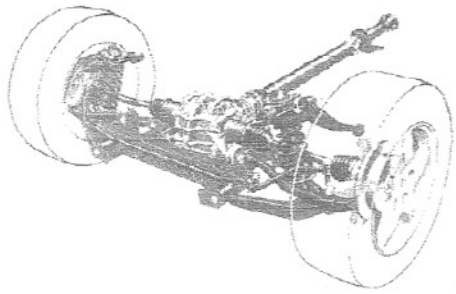


Chapter 67

Suspension System Fundamentals

Name: _____ Date: _____

Instructor: _____ Score: _____ Textbook pages 1243–1264

Objective: After studying this chapter, you will be able to explain the construction and operation of modern suspension systems.

Basic Suspension System

1. What is *chassis stiffness* and how is it measured? _____

2. Define the six basic parts of a suspension system.

   Control arm: _____

   Steering knuckle: _____

   Ball joint: _____

   Spring: _____

   Shock absorber or damper: _____

   Control arm bushing: _____

3. Independent suspension systems allow one wheel to move up and down with _____ on the _____. 3. _____

4. What is *understeer?* _____

5. What is *oversteer?* _____

6. Explain *lateral acceleration* and how it is measured. _____

Suspension System Springs

7. Suspension system springs must _____ and _____ with bumps and holes in the road. 7._____

8. What are the four types of suspension system springs?

(A)_____

(B)_____

(C)_____

(D)_____

Suspension System Construction

9. A control arm holds the _____ in position as the wheel moves up and down. 9._____
   (A) steering knuckle
   (B) bearing support
   (C) axle housing
   (D) All of the above.

10. What is a *strut rod?* _____

11. Without shock absorbers, the vehicle would continue to _____ after striking a dip or hump in the road. 11._____

12. What is the advantage of *gas-charged shock absorbers?* _____

13. How does a gas-filled shock absorber operate?_____

14. What components does a *strut assembly* consist of?_____

15. How does a *sway bar* work? _____

16. A(n) _____ keeps the suspension system from hitting the frame structure. 16._____

17. If you hear a loud bang or thud when going over a large bump in the road, what might be happening and what might this be telling you?

18. Explain the construction, operation, and adjustment of a torsion bar suspension system. _____

19. Explain the construction/operation of a MacPherson strut suspension system.

20. Explain these three basic parts of an electronic height control system.

Height sensor: _____

Sensor link: _____

Solenoid valve: _____

21. Explain these major parts of a typical electronic shock absorber system.

Steering sensor: _____

Brake sensor: _____

Acceleration sensor: _____

Mode switch: _____

Electronic control unit: _____

Shock actuators: _____

22. How can a *sonar* sensor be used in an electronically controlled suspension system?

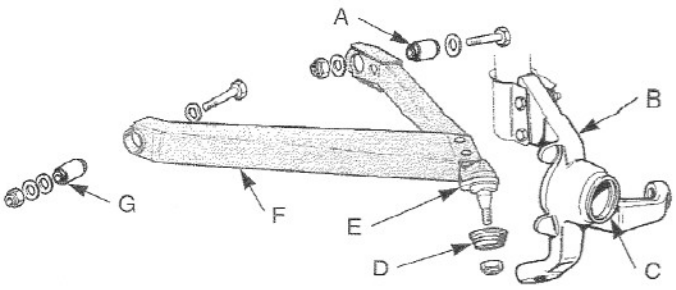
23. A(n) _____ suspension system uses computer controlled hydraulic rams instead of conventional suspension system springs and shock absorbers. 23. _____

24. What purpose do *ball joints* serve? _____

25. Spring _____ are limited by a vehicle's shock absorbers. 25. _____

26. Shock absorber _____ occurs when the vehicle's tire is forced upward upon hitting a bump. 26. _____

27. Label the parts of the control arm.



(A) _____
(B) _____
(C) _____
(D) _____
(E) _____
(F) _____
(G) _____

Suspension Leveling Systems

28. What is the main function of a suspension leveling system? _____

_____

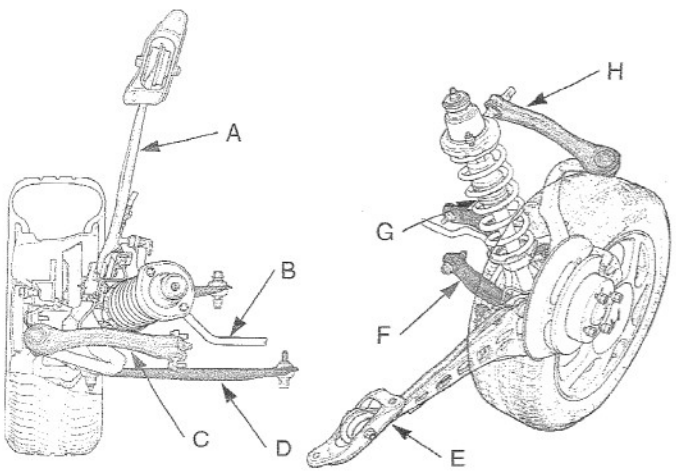
_____

29. A(n) _____ suspension leveling system uses air shocks and an electric compressor to maintain curb height. 29. _____

30. What is a *height sensor?* _____

_____

31. Identify the parts of the double-wishbone suspension system.



(A) _____
(B) _____
(C) _____
(D) _____
(E) _____
(F) _____
(G) _____
(H) _____

Electronic and Active Suspension Systems

32. What is a *mode switch?* _____

_____

_____

33. An active suspension system uses computer-controlled _____ instead of conventional springs and shock absorber actuators to control ride characteristics. 33. _____