COIL SPRINGS: Two basic designs of coil springs are used: linear rate and variable rate. Linear rate springs characteristically have one basic shape and a consistent wire diameter. All linear springs are wound from a steel rod into a cylindrical shape with even spacing between the coils. As the load is increased, the spring is compressed and the coils twist (deflect). As the load is removed, the coils flex (unwind) back to the normal position. The amount of load necessary to deflect the spring 1 inch is the spring rate. On linear rate springs this is a constant rate, no matter how much the spring is compressed. For example, 250 lbs. compresses the spring 1 inch and 750 lbs. compresses the spring 3 inches. Springs rates for linear rate springs are normally calculated between 20% and 60% of the total spring deflection.

Since heavy-duty springs are designed to carry 3% to 5% greater loads than regular springs, they are somewhat different. The first difference is wire diameter, which can be up to 0.100 inch greater than the regular-duty spring for the same application. The other difference is free length. A heavy-duty spring is up to 2 1/2 inches shorter than a regular-duty spring for the same application. The important factor to remember is load-carrying capabilities.

Variable-rate springs are characterized by a combination of wire sizes and shapes. The most common ones have a consistent wire diameter and unequally spaced coils. This spring is called a progressive rate.

The spacing gives the spring three functional ranges of coils: inactive, transitional, and active. Inactive coils are usually the end coils and introduce force into the spring. Transitional coils become inactive as they are compressed to their point of maximum load-bearing capacity. Theoretically in this type of design, at stationary loads the inactive coils are supporting all the vehicle's weight. As the loads are increased, the transitional coils take over until they reach maximum capacity. Finally the active coils carry the remaining overload. This allows for automatic load adjustment while maintaining vehicle height.

The latest design of variable rate springs deviate from the old cylindrical shape. These include the truncated cone, the double cone, and the barrel spring. The major advantage of these designs is the ability of the coils to nest or bottom out within each other without touching, which lessens the amount of space needed to store the springs in the vehicle.

Unlike a linear spring, a variable spring has no predictable standard spring rate. Instead, it has an average spring rate based on the load of a predetermined spring deflection. This makes it impossible to compare a linear spring to a variable spring. Variable springs, however, handle a load of up to 30% over standard springs in some applications.
NAPA has four different rear springs for a '72 C20:

Standard spring--
Wire Diameter:.765"
Load Height:8.75"
# of Coils:6.1
Design Load:1700
Spring Rate:389
Free Height:13.12"

Heavy duty--
Wire Diameter:.906"
Load Height:8.75"
# of Coils:5.89
Design Load:2900
Spring Rate:718
Free Height:12.54"

Standard variable-rate--
Wire Diameter:.812"
Load Height:10.75"
# of Coils:7.43
Design Load:950
Spring Rate:445
Free Height:13"

Heavy duty variable-rate--
Wire Diameter:.937"
Load Height:10.75"
# of Coils:6.82
Design Load:1335
Spring Rate:820
Free Height:12.38"

BATurbo, here's the specs on their available '70 C10 springs (there are only two):

Heavy duty--
Wire Diameter:.765"
Load Height:8.75"
# of Coils:6.1
Design Load:1700
Spring Rate:389
Free Height:13.12"

Variable-rate--
Wire Diameter:.812"
Load Height:10.75"
# of Coils:7.43
Design Load:950
Spring Rate:445
Free Height:13"

Looks like the heavy-duty 1/2-ton spring is the same as the standard-duty 3/4-ton spring. The 1/2-ton variable and the standard 3/4-ton variable are also the same. The variable-rate springs all

have heavier wire, and a lower design load but higher spring rates, which lends some legitimacy to the statement in the text about comparisons being impossible . . . I guess.