

# 2012 GUIDE TO TOWING

MORE THAN  
**700**  
LISTINGS!



A Supplement to

**TRAILER**  
LIFE

**Selecting a Tow Vehicle • Hitching Basics  
Towing Tips • Trailer-Brake Controllers**

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FOLLOW THE ROAD TO ADVENTURE

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# CHOOSE WISELY

By Duncan O'Neal

## Keeping within manufacturer-assigned tow ratings is critical in making the appropriate model and option choices

**T**here are many variables to consider when selecting the proper tow vehicle for your application. Among them are budget, brand and towing capacity — and it's important to examine them all carefully before making a purchase. Going through the effort to better understand each variable and to account for all of them up front will lead to a more pleasant trailering experience.

### WEIGHT

The tow-ratings guide in this section lists the maximum tow ratings for vehicles with specific equipment, but many buyers interpret the maximum vehicles' tow ratings with far too much optimism. Always check the manufacturer's figures before making a purchase. The following is an explanation of the terms you need to know which, when combined with readings from a public scale and from your own calculator, should help you determine the correct tow rating for the tow vehicle you plan to buy.

**Gross Combination Weight Rating (gcwr):** The total allowable weight of the tow vehicle, the trailer, the cargo in each, hitch hardware, fluids and occupants.

**Gross Vehicle Weight Rating (gvwr):** The total allowable weight for the vehicle, including occupants, fluids, options, hitch hardware, cargo and trailer-hitch weight.

**Gross Axle Weight Rating (gawr):** The total allowable weight on an individual axle. This includes the weight of the tires, wheels, brakes and the axle itself.

**Maximum Tow Rating:** The manufacturer's weight limit for towed loads. For conventional trailers, this normally includes a hitch-weight limit as well; for fifth-wheels, the pin weight is applied to the truck's gvwr and its rear-axle gawr.

### MATCHING UP THE TOW VEHICLE AND TRAILER

The gvwr and gawr for all motor vehicles are listed on the data plate, typically affixed to



the driver's door frame, fuel door, glove box, end of the dashboard or other easy-to-access location. Brochures and window stickers may be inaccurate; always look for the data plate. All trailers should have a weight sticker on the left front side wall. There should also be a sticker in an interior cabinet that lists the trailer's unloaded vehicle weight (uvw), gvwr, weight added by freshwater and LP-gas and the resulting cargo carrying capacity (ccc).

In many cases, especially on older trailers, optional equipment — such as air-conditioning units and AC generators — sneaks on board after weighing, and may not be reflected on the sticker. (And don't forget the fuel-fill tanks that some SURVs offer for campsite refueling of motorcycles and ATVs.)

Recreational Vehicle Industry Association (RVIA) weight label requirements are more inclusive of dealer-added options and make it much easier for buyers to have access to more accurate weight figures.

The gvwr figures are neither guidelines nor estimates; they are limits, and there are numerous valid reasons the manufacturer arrived at

these figures. If you think the figures are "close enough" or have a fudge-factor percentage built in, think again. Your warranty coverage, and your safety, may be at risk.

The only surefire way to find out what your trailer weighs is to load it as usual for a trip and weigh it at a public scale. There you can get the hitch weight, axle weight and total weight. Assuming that the axle weight is lower than the gawr, the total is within the gvwr and the hitch weight is lower than the maximum given for your tow vehicle, you can then move on to tow-vehicle selection.

When purchasing a trailer, consult the weight sticker on the unit of your choice on a dealer's lot and refer to the uvw and ccc.

Estimate how much cargo you will add, being mindful of the gvwr, and use that number while selecting a tow vehicle.

To a lesser extent, tow-vehicle weight is variable as well. Brochures and tow guides frequently list how much a tow vehicle weighs, but this number generally applies to the most basic model in that configuration, without any options. In some cases, distinctions are made by engine, transmission, drive system (2WD or 4WD/AWD) and, in other cases, by cab or bed styles. If the dealer does not have a vehicle equipped as you want that is available to weigh, or cannot provide option weights, you can form rough estimates — but exact figures are the only way to be certain.

Bigger engines add weight, diesels more so because they come with additional accessories (up to 700 pounds more than the standard gas engine is common). Add up to 175 pounds for an optional transmission, about 400 pounds for 4WD and a bit less than 300 pounds for longer beds. Then add other options like luxury-trim levels, as all those electric motors add up. The towing package and hitch could add another 100 pounds, and larger wheels and tires can also have an effect.

## FOR EXAMPLE

Here is an example of how to calculate the realistic towing capacity of a vehicle. For example, consider a fictional one-ton longbed, diesel, extended-cab, 2WD, single-rear-wheel pickup set up for towing. We'll arbitrarily assign it a gvwr of 9,900 pounds, a front gawr of 5,000 pounds, a rear gawr of 6,824 pounds, a gcwr of 23,000 pounds and a quoted maximum tow rating of 17,000 pounds.

As is often the case in single-rear-wheel





trucks, the rear axle's gawr on this truck is derived from each tire's maximum load of 3,412 pounds. Pickups such as this normally start at more than 6,000 pounds, and with a diesel, automatic and nice trim, figure that with a full tank of fuel and hitch, this unit weighs at least 7,000 pounds. If we add two "standard-size" people (154 pounds each), a few tools and some cargo, it weighs 7,500 pounds. That is split to 4,000 pounds on the front axle, and 3,500 pounds on the rear axle.

The first thing you should have noticed is that the maximum tow rating cannot apply with the truck fully loaded because gcwr (23,000) minus gwvr (9,900) leaves 13,100 pounds — about 4,000 pounds less than quoted towing ability. After adding options and people to the example truck, and subtracting that value (7,500) from gcwr (23,000), the effective working tow rating of the truck becomes 15,500 pounds, about 1,500 pounds less than the truck's quoted maximum towing rating.

However, you have yet to check all the numbers and verify that a 15,500-pound trailer will work. If that trailer is a fifth-wheel and has 20 percent of its weight on the pin, that adds 3,100 pounds to the back of the truck. This would make the truck overweight — its 7,500-pound ready-to-roll weight plus the 3,100 pounds on the pin equals 10,600 pounds — 700 pounds more than the truck's gwvr, and just 224 pounds shy of the rear-axle limit of 6,824 pounds.

SUVs and other non-pickup tow rigs cannot escape scrutiny. The vehicle's loaded weight, with the anticipated load of passengers aboard, must be subtracted from the gcwr to determine the realistic tow rating.

### OTHER FACTORS

The tow-ratings chart in this publication lists

vehicle-towing maximums segregated by engine, cab style, drive and single- or dual-rear wheels as appropriate. In general, assume the maximum tow rating always requires a towing package — and special towing equipment (see "Towing Packages," beginning on page 36) — and the highest numerical axle ratio offered, and as the example shows, maximums can be confusing. You can do your own estimates by starting with the information given and keeping the following generalizations in mind.

**Transmission:** For the majority of vehicles, automatic transmissions offer the higher tow ratings when they vary by transmission. On heavy-duty (HD) models, the difference may be 1,000 pounds or less, and on lighter-duty vehicles, a manual tranny might rate a 2,000-pound lower tow rating. Exceptions include high-output engines that are available only with manual gearboxes, vehicles where the manual transmission weighs more than the automatic and transmissions in vehicles designed for high performance and not towing.

**Axle Ratio:** Lower gearing (the numerically higher ratios, e.g. 4.10:1, 4.56:1, as opposed to 3.31:1, 3.42:1), typically produces greater tow ratings because of greater torque multiplication. There is a wide variance in the axle ratio's effect on the tow rating, with some diesel-powered pickups varying only a few hundred pounds; on others, changing from a 3.73:1 to a 4.30:1 sometimes increases the tow rating by 3,500 pounds. In the past, some ratings have increased by a factor greater than three (from 2,000 to 7,100 pounds) simply by using a different axle ratio. Lower gearing will also make your vehicle accelerate quicker up to 50-55 mph. In general, a one-step drop in axle ratio (4.10:1 to 3.73:1) on an HD pickup will drop tow rating and gcwr by a ton.

Lower gearing has an adverse effect on fuel

Most automatic transmissions offer increased towing ratings over their manual counterparts. To be sure, always check with the manufacturer.



economy, but it's usually not proportional to the gain in towing ability. Under the best circumstances, the difference between the highest and lowest gear ratios offered (say, 3.42:1 and 4.10:1) results in a 1.5-mpg decrease in non-towing, steady state-highway cruising. In most normal conditions that change is less than 1 mpg, and if you tow a relatively heavy trailer a lot, there's no question that the lowest gearing is best.

**Drive System:** Vehicles that drive only two wheels, be they front or rear, generally have higher tow ratings (all other things being equal). Even though modern 4WD and AWD systems are quite efficient, a small amount of parasitic loss uses up energy. More importantly, 4WD systems add weight — easily up to 400 pounds on some HD pickups — and that weight frequently comes off the tow rating. Unless the gcwr and gwvr are higher, a 4WD version will probably tow a few hundred pounds less than its 2WD counterpart.

**Towing Package:** If you can order a towing package, do so. Not only is it usually required to get the top tow rating, but the contents rarely can be duplicated for the original cost — and it will add to resale value. You can plainly see the hitch receiver or electrical receptacle, but there are often other changes to the wiring system (including up-rated wire and fuses), alternator, battery, cooling system, power steering and lubricants. In some cases, integrated brake controllers and fifth-wheel hitches are also offered.

**Bed Length/Style:** If there's a difference, a longbed truck may rate slightly lower in tow capacity — about 150-250 pounds — because the longer bed adds weight. In other cases there is no change because the longer wheelbase is beneficial. Note that the more “styled” beds marketed under a variety of names typically are heavier than conventional slab-sided beds, and that cab-and-chassis figures do not reflect any bed unless otherwise noted. A steel bed for a medium-duty cab-and-chassis could quickly eat up an entire ton of its gcwr.

**Single or Dual Rear Wheels:** Most people assume that a dually pickup will have a higher tow rating than a single-rear-wheel unit, but this is not always so. In many cases the gcwr is limited by factors other than the number of rear wheels and does not change, and in those cases the weight of the wider axle, bigger brakes and two more tires and wheels is subtracted from the gcwr. The dually no doubt provides a more stable towing platform for the heavier trailers, although not always with the highest tow



rating. A dually will have a higher gwvr because the dual-wheel rear axle might have a 10,000-pound gawr, for example, compared to the single-rear-wheel truck's 6,824-pound gawr. Gawr is not always an exact calculation of the tire capacity times the number of tires. A dually-equipped truck will be better for hauling a heavy slide-in truck camper and handling heavy fifth-wheel pin weights because of the weight concentrated on the rear axle as compared to the conventional trailer's hitch weight.

**Tires:** Wheel sizes continue to grow commensurate with their popularity, with some tow vehicles offering 20-inch wheels as factory options. However, using a larger wheel and lower-profile tire means a smaller air cushion and lower tire sidewall, to the extent that tow ratings generally drop whenever the wheel size increases — and ride comfort can be compromised. Read the fine print on the packaging carefully.

## RESEARCH

Before purchasing any vehicle for towing, ensure that the equipment required is available for your vehicle. You may find that the new-kid-on-the-block is a very capable tow vehicle, but no one makes a fifth-wheel hitch for it. (Ford remedied this quandary on 2011 Super Duty trucks; GM also offers a fifth-wheel saddle-ready option). Also beware of hitch-ball and receiver ratings, as some trucks are rated for heavier loads than any easily found hardware can handle, and therefore may require special-order parts.

Before purchasing a vehicle, we suggest you acquire the manufacturer's comprehensive towing guide, available online or at dealerships. Be sure to read the fine print because in many cases the maximum rating may apply only to one particular version and be for a fifth-wheel trailer; many larger pickups may have their actual tow rating limited by the hitch and hardware. 🚚

# TOWING 2012

By Chris Hemer



## It's a long list of steady improvement rather than radical change for this year's crop of tow vehicles

**E**very year, RVers wait with eager anticipation to see what the latest crop of trucks and SUVs will have to offer — whether it's increased capacity, revised styling, new features or any combination of all of the above. And while many years have brought all-new vehicles, engines or other major news, 2012 is a year of gradual improvement rather than radical change. Considering Ford, Dodge and GM have all recently introduced new or significantly revised trucks in the last couple of years, we're not likely to see anything earth-shattering for a little while, at least.

That's not to say that there isn't still a lot to

talk about. Domestic and foreign auto manufacturers have still managed to make 2012 exciting with greater capacity, more features and enhanced capability. So if you're looking for a new tow vehicle, this can still be your year.

As usual, we're only going to cover vehicles from the major manufacturers, and only those that have undergone meaningful changes that could potentially improve your towing/outdoor experience — a minor exterior revision or new interior treatment doesn't make the cut.

So, without further delay, we bring you the latest and greatest for 2012.





Ford's EcoBoost uses direct-injection and turbocharging in a gas engine, resulting in more power and minimal turbo lag.





## FORD MOTOR COMPANY

The crown jewel of Ford, the F-150, enters 2012 with several new technologies and drive-line upgrades, including hill-start assist and the addition of neutral tow capability on all 4x4 models, making them easier to flat-tow behind a motorhome. An optional electronic locking rear axle replaces most of the limited-slip offerings on the 3.5-liter EcoBoost and

5.0-liter engines, and is available on 2WD and 4WD models in a range of gear ratios. Finally, last year's electronic shift-on-the-fly has been replaced with a two-speed automatic 4x4 system on Lariat, King Ranch and Platinum trim levels. The system still features four high and four low modes, but now also offers a 4x4 auto mode. As for visual enhancements, the F-150 is now available with an FX appearance





package on the FX4 and FX2 trucks. Featuring flat-black accents, unique badges and exclusive interior treatments, the most noticeable feature of the FX package will likely be the flat-black, six-spoke 20-inch wheels. An FX luxury package, meanwhile, now offers cooled front seats, which combine with the previously available heated seats. The off-road ready F-150 SVT Raptor gets a new Torsen front differential and a class-exclusive, patent-pending front camera that will enable off-road drivers to see what's in front of them, even when the driver's view might be blocked. The F-Series

Super Duty is largely carryover for 2012, but an enhanced hitch receiver and frame upgrades enable best-in-class travel-trailer tow ratings of 17,500 pounds on F-350 and F-450 models with dual rear wheels. Fifth-wheel ratings move up to 22,700 pounds for the F-350 dually, and 24,500 pounds for the F-450. The Ford Ranger, after years of neglect, has finally been laid to rest.

## CHRYSLER CORPORATION

The Ram 1500 continues to improve for 2012 with a new six-speed automatic transmission with Electronic Range Select and a new, more efficient torque converter. A segment-exclusive coil-spring, multilink rear-suspension arrangement promises car-like ride and handling, and the 5.7-liter HEMI engine now produces 390 hp and 407 lb-ft of torque, along with 20-mpg highway fuel economy. The days of three or four trim levels are gone. For 2012, the Ram 1500 is offered in 11 models: Tradesman, Express, Outdoorsman, ST, SLT, Sport, Sport R/T, Lone Star, Big Horn, Laramie and Laramie Longhorn, all of which are available with a factory spray-in bedliner. Other cool available features include the highly touted Rambox, in-floor storage bins and segment firsts like surround-sound audio, heated and ventilated front seats and heated rear seats. Standard safety features include ABS, stability control, hill-start assist and trailer-sway control. If you work as hard as you play, the new Tradesman HD model may be of particular interest to you; it boasts an 11,500-pound maximum trailer rating and a 3,100-pound payload, more than any other half-ton truck, according to Chrysler.







The bad news? It's only available one way: 4x2, regular cab with an 8-foot bed. The Ram 2500 and 3500 models may not have as much to report, but what they offer is still significant. The standard HEMI gas V-8 gets a new six-speed automatic transmission, and the available 6.7-liter Cummins engine pounds out 350 hp and 800 lb-ft of torque, yet meets 50-state emissions requirements without the need for pesky diesel exhaust fluid. It also comes with a standard exhaust brake. And a new Ram 3500 Max Tow package features a 22,750-pound trailer rating ... just in case you move up to a quad-slide fifth-wheel some day. The Dodge Dakota is no longer with us.

## GENERAL MOTORS

Not much to report on the Chevy Silverado/GMC Sierra 1500 front, save for some minor exterior updates, new colors and the addition of hard-drive navigation radios. More meaningful for RVers is the addition of electronic trailer-sway control and hill-start assist to the standard StabiliTrak stability control system. The Sierra/Silverado HD underwent significant revisions last year, so not much has changed for 2012 — unless you've got some very heavy hauling to do. A beefed up trailer hitch receiver now bestows the 3500 dually with a stratospheric 18,000-pound tow rating for conventional trailers, and up to 23,000





pounds for a fifth-wheel, thanks to enhancements to the pickup box sills and structure, leaf springs, U-bolts and box mounts.

The Chevy Colorado will formally be discontinued after the 2012 model year, to be followed by a new Colorado, based on an all-new midsize truck architecture developed by GM do Brasil within GM's global product development organization. Launch date is yet unknown at press time.

## TOYOTA

The Toyota Tundra, having recently been named the Most Dependable Large Pickup for the sixth year in a row in the 2011 J.D. Power and Associates Vehicle Dependability Study, is

essentially carryover for 2012. The nation's best-selling compact pickup, Toyota Tacoma, however, has undergone several cosmetic changes for 2012 including a redesigned hood, grille, headlamps and front bumper, plus interior updates. But the bigger news is the Tacoma TRD T/X Baja Series Limited Edition (we'll just call it the Baja) that pays homage to Toyota's Baja racing heritage. At press time, the Baja was undergoing final testing for application on both the Tacoma Access and Double Cab 4x4 models equipped with the TRD Off-Road Package. Expansion into the Pre-Runner 2WD models is also being considered, according to Toyota. Equipped with a 4.0-liter V-6 and either a six-speed manual or five-speed automatic transmission, the Baja will feature TRD Off-Road Package goodies like an electronically locking rear differential, Active Traction Control, Hill-Start Assist Control and Downhill Assist Control. Plus there are Baja-exclusive features like BF Goodrich T/A KO tires on bead-lock-style off-road wheels, TRD cat-back exhaust, increased front end ride height, Bilstein race shocks on all four corners and unique Baja Series graphics. One final note that's worth mentioning: Toyota is still the only manufacturer to have adopted SAE standard J2807 (which the company adopted last year), a new standard for measuring the towing capability of vehicles. As such, Toyota's tow ratings may appear lower than they were a couple of years ago, but the capacity of the vehicles remains the same. Expect to see similar changes to everyone else's ratings next year when J2807 is supposed to officially go into effect. 🚚






# HOW TO USE THIS GUIDE

**T**ow ratings for all vehicle manufacturers are listed in alphabetical order, and are organized by model type and configuration. In most instances, you will find a letter (or letters) which identify the equipment that the rating is based on, i.e. automatic or manual transmission, gear ratio, towing package, etc. You will find the meaning for each of these letters in the "Key to Charts" section on page 18.

If there is no letter after the rating, that means there is only one rating available. Likewise, you may find the word "all" in the engine column; that means all available engines are capable of that particular tow rating.

Because each manufacturer lists its vehicles differently, we have found it necessary to make some changes in an effort to keep this guide consistent and concise. For example, Ram trucks are listed with separate tow ratings for each trim level; while we understand

that equipment adds weight and therefore reduces towing capacity, we simply don't have room to publish separate ratings based on a 50-pound weight difference. Likewise, GM doesn't have separate conventional and fifth-wheel tow ratings, and instead simply indicates a separate rating for models that are equipped to tow a fifth-wheel. So in the GM section, you'll note that some models have two ratings separated by a slash; the first rating is for conventional towing, the second is for fifth-wheel towing.

Where applicable, we've also included relevant manufacturer's notes for a particular vehicle or model line, but always check with your dealer for details on the model you plan to purchase, including tow rating, payload capacity, gross vehicle weight rating (gvwr), gross combination weight rating (gcwr) and gross axle weight ratings (gawr). 

## 2012 TOW RATINGS

Model	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1899	1898	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887	1886	1885	1884	1883	1882	1881	1880	1879	1878	1877	1876	1875	1874	1873	1872	1871	1870	1869	1868	1867	1866	1865	1864	1863	1862	1861	1860	1859	1858	1857	1856	1855	1854	1853	1852	1851	1850	1849	1848	1847	1846	1845	1844	1843	1842	1841	1840	1839	1838	1837	1836	1835	1834	1833	1832	1831	1830	1829	1828	1827	1826	1825	1824	1823	1822	1821	1820	1819	1818	1817	1816	1815	1814	1813	1812	1811	1810	1809	1808	1807	1806	1805	1804	1803	1802	1801	1800	1799	1798	1797	1796	1795	1794	1793	1792	1791	1790	1789	1788	1787	1786	1785	1784	1783	1782	1781	1780	1779	1778	1777	1776	1775	1774	1773	1772	1771	1770	1769	1768	1767	1766	1765	1764	1763	1762	1761	1760	1759	1758	1757	1756	1755	1754	1753	1752	1751	1750	1749	1748	1747	1746	1745	1744	1743	1742	1741	1740	1739	1738	1737	1736	1735	1734	1733	1732	1731	1730	1729	1728	1727	1726	1725	1724	1723	1722	1721	1720	1719	1718	1717	1716	1715	1714	1713	1712	1711	1710	1709	1708	1707	1706	1705	1704	1703	1702	1701	1700	1699	1698	1697	1696	1695	1694	1693	1692	1691	1690	1689	1688	1687	1686	1685	1684	1683	1682	1681	1680	1679	1678	1677	1676	1675	1674	1673	1672	1671	1670	1669	1668	1667	1666	1665	1664	1663	1662	1661	1660	1659	1658	1657	1656	1655	1654	1653	1652	1651	1650	1649	1648	1647	1646	1645	1644	1643	1642	1641	1640	1639	1638	1637	1636	1635	1634	1633	1632	1631	1630	1629	1628	1627	1626	1625	1624	1623	1622	1621	1620	1619	1618	1617	1616	1615	1614	1613	1612	1611	1610	1609	1608	1607	1606	1605	1604	1603	1602	1601	1600	1599	1598	1597	1596	1595	1594	1593	1592	1591	1590	1589	1588	1587	1586	1585	1584	1583	1582	1581	1580	1579	1578	1577	1576	1575	1574	1573	1572	1571	1570	1569	1568	1567	1566	1565	1564	1563	1562	1561	1560	1559	1558	1557	1556	1555	1554	1553	1552	1551	1550	1549	1548	1547	1546	1545	1544	1543	1542	1541	1540	1539	1538	1537	1536	1535	1534	1533	1532	1531	1530	1529	1528	1527	1526	1525	1524	1523	1522	1521	1520	1519	1518	1517	1516	1515	1514	1513	1512	1511	1510	1509	1508	1507	1506	1505	1504	1503	1502	1501	1500	1499	1498	1497	1496	1495	1494	1493	1492	1491	1490	1489	1488	1487	1486	1485	1484	1483	1482	1481	1480	1479	1478	1477	1476	1475	1474	1473	1472	1471	1470	1469	1468	1467	1466	1465	1464	1463	1462	1461	1460	1459	1458	1457	1456	1455	1454	1453	1452	1451	1450	1449	1448	1447	1446	1445	1444	1443	1442	1441	1440	1439	1438	1437	1436	1435	1434	1433	1432	1431	1430	1429	1428	1427	1426	1425	1424	1423	1422	1421	1420	1419	1418	1417	1416	1415	1414	1413	1412	1411	1410	1409	1408	1407	1406	1405	1404	1403	1402	1401	1400	1399	1398	1397	1396	1395	1394	1393	1392	1391	1390	1389	1388	1387	1386	1385	1384	1383	1382	1381	1380	1379	1378	1377	1376	1375	1374	1373	1372	1371	1370	1369	1368	1367	1366	1365	1364	1363	1362	1361	1360	1359	1358	1357	1356	1355	1354	1353	1352	1351	1350	1349	1348	1347	1346	1345	1344	1343	1342	1341	1340	1339	1338	1337	1336	1335	1334	1333	1332	1331	1330	1329	1328	1327	1326	1325	1324	1323	1322	1321	1320	1319	1318	1317	1316	1315	1314	1313	1312	1311	1310	1309	1308	1307	1306	1305	1304	1303	1302	1301	1300	1299	1298	1297	1296	1295	1294	1293	1292	1291	1290	1289	1288	1287	1286	1285	1284	1283	1282	1281	1280	1279	1278	1277	1276	1275	1274	1273	1272	1271	1270	1269	1268	1267	1266	1265	1264	1263	1262	1261	1260	1259	1258	1257	1256	1255	1254	1253	1252	1251	1250	1249	1248	1247	1246	1245	1244	1243	1242	1241	1240	1239	1238	1237	1236	1235	1234	1233	1232	1231	1230	1229	1228	1227	1226	1225	1224	1223	1222	1221	1220	1219	1218	1217	1216	1215	1214	1213	1212	1211	1210	1209	1208	1207	1206	1205	1204	1203	1202	1201	1200	1199	1198	1197	1196	1195	1194	1193	1192	1191	1190	1189	1188	1187	1186	1185	1184	1183	1182	1181	1180	1179	1178	1177	1176	1175	1174	1173	1172	1171	1170	1169	1168	1167	1166	1165	1164	1163	1162	1161	1160	1159	1158	1157	1156	1155	1154	1153	1152	1151	1150	1149	1148	1147	1146	1145	1144	1143	1142	1141	1140	1139	1138	1137	1136	1135	1134	1133	1132	1131	1130	1129	1128	1127	1126	1125	1124	1123	1122	1121	1120	1119	1118	1117	1116	1115	1114	1113	1112	1111	1110	1109	1108	1107	1106	1105	1104	1103	1102	1101	1100	1099	1098	1097	1096	1095	1094	1093	1092	1091	1090	1089	1088	1087	1086	1085	1084	1083	1082	1081	1080	1079	1078	1077	1076	1075	1074	1073	1072	1071	1070	1069	1068	1067	1066	1065	1064	1063	1062	1061	1060	1059	1058	1057	1056	1055	1054	1053	1052	1051	1050	1049	1048	1047	1046	1045	1044	1043	1042	1041	1040	1039	1038	1037	1036	1035	1034	1033	1032	1031	1030	1029	1028	1027	1026	1025	1024	1023	1022	1021	1020	1019	1018	1017	1016	1015	1014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# 2012 TOW RANKING

## KEY TO CHARTS

**a**=Automatic Transmission  
**a4**=Automatic transmission, Four Speeds  
**a5**=Automatic transmission, Five Speeds  
**a6**=Automatic transmission, Six Speeds  
**m**=Manual Transmission  
**m5**=Manual Transmission, Five Speeds  
**m6**=Manual Transmission, Six Speeds

**b**=3.08:1  
**c**=3.15:1  
**d**=3.21:1  
**e**=3.23:1  
**f**=3.31:1  
**g**=3.42:1  
**h**=3.55:1  
**i**=3.73:1

**j**=3.92:1  
**k**=4.10:1  
**l**=4.30:1  
**n**=4.44:1  
**o**=4.56:1  
**q**=4.88:1  
**r**=5.38:1

**AWD**=All-Wheel Drive  
**CC**=Crew Cab  
**KC**=King Cab  
**SB**=Shortbed  
**Std Bed**=Standard Bed  
**LB**=Longbed  
**SWB**=Short Wheelbase  
**LWB**=Long Wheelbase  
**DRW**=Dual Rear Wheels

**SRW**=Single Rear Wheels  
**CV**=Cargo Van  
**PV**=Passenger Van  
**TD**=Turbo Diesel  
**TC**=Turbocharged  
**SC**=Supercharged  
**NA**=Not applicable, or not available

**p**=Cooling or other accessory package required  
**t**=Towing package required

**A forward slash (/)** denotes either/or; **comma** indicates more than one footnote applies.

VEHICLE	ENGINE	TOW LIMIT (lb)			
<b>ACURA</b>					
MDX	3.7L V-6	5,000			
<b>AUDI</b>					
Q5	All	4,400	Escalade ESV AWD	6.2L V-8	7,700
Q7	All	5,500*	Escalade EXT AWD	6.2L V-8	7,600
Q7	3.6L V-6	6,600 (t)	Escalade Two Mode Hybrid 2WD	6.0L V-8	5,800
* With dealer-installed hitch			Escalade Two Mode Hybrid 4WD	6.0L V-8	5,600
<b>BMW</b>			SRX AWD	3.0L V-6	2,500
X3 2.8i	3.0L I-6	3,500	SRX AWD	3.0L V-6	3,500 (t)
X5 3.5i	3.0L I-6	6,000	SRX FWD	3.0L V-6	2,500
X5 3.5i	4.8L V-8	6,000	SRX FWD	3.0L V-6	3,500 (t)
X535d	3.0 I-6 TD	6,000	<b>CHEVROLET/GMC</b>		
X55.0i	4.4L V-8	6,000	Avalanche 1500 2WD	5.3L V-8	5,100 (b)
X635i	3.0L I-6	6,000	Avalanche 1500 2WD	5.3L V-8	5,600 (g)
X650i	4.4L V-8	6,000	Avalanche 1500 2WD	5.3L V-8	8,100 (g,p)
<b>BUICK</b>			Avalanche 1500 4WD	5.3L V-8	5,000 (b)
Enclave FWD	3.6L V-6	2,000	Avalanche 1500 4WD	5.3L V-8	5,500 (g)
Enclave FWD	3.6L V-6	4,500 (t)	Avalanche 1500 4WD	5.3L V-8	8,000 (g,p)
Enclave AWD	3.6L V-6	2,000	Traverse/Acadia FWD	3.6L V-6	2,000
Enclave AWD	3.6L V-6	4,500 (t)	Traverse/Acadia FWD	3.6L V-6	5,200 (t)
<b>CADILLAC</b>			Traverse/Acadia AWD	3.6L V-6	2,000
Escalade 2WD	6.2L V-8	8,300	Traverse/Acadia AWD	3.6L V-6	5,200 (t)
Escalade AWD	6.2L V-8	8,100	Colorado/Canyon Reg Cab 2WD	2.9L I-4	3,400 (a,i)
Escalade ESV 2WD	6.2L V-8	8,000	Colorado/Canyon Reg Cab 2WD	2.9L I-4	2,400 (m,i)
			Colorado/Canyon Reg Cab 2WD	3.7L I-5	4,000 (a,i)
			Colorado/Canyon Ext Cab 2WD	2.9L I-4	3,200 (a,i)
			Colorado/Canyon Ext Cab 2WD	2.9L I-4	2,200 (m,i)
			Colorado/Canyon Ext Cab 2WD	3.7L I-5	5,500 (a,i)
			Colorado/Canyon Ext Cab 2WD	5.3L V-8	6,000 (a,g/i)
			Colorado/Canyon Ext Cab 2WD	5.3L V-8	4,000 (a,g*)
			Colorado/Canyon CC 2WD	2.9L I-4	3,000 (a,i)
			Colorado/Canyon CC 2WD	2.9L I-4	2,100 (m,i)



# TOWING GUIDE

Colorado/Canyon CC 2WD	3.7L I-5	5,500 (a,i)
Colorado/Canyon CC 2WD	5.3L V-8	6,000 (a,g/i)
Colorado/Canyon CC 2WD	5.3L V-8	3,800 (a,g*)
Colorado/Canyon Reg Cab 4WD	2.9L I-4	3,100 (a,i)
Colorado/Canyon Reg Cab 4WD	2.9L I-4	2,100 (m,i)
Colorado/Canyon Reg Cab 4WD	3.7L I-5	4,000 (a,i)
Colorado/Canyon Ext Cab 4WD	2.9L I-4	2,900 (a,i)
Colorado/Canyon Ext Cab 4WD	3.7L I-5	5,500 (a,i)
Colorado/Canyon Ext Cab 4WD	5.3L V-8	6,000 (a,g/k)

\* Sport suspension

Colorado/Canyon CC 4WD	3.7L I-5	5,500 (a,i)
Colorado/Canyon CC 4WD	5.3L V-8	6,000 (a,g/k)
Equinox/Terrain	3.0 V-6	3,500
Express/Savana 1500 SWB CV 2WD	4.3L V-6	4,300
Express/Savana 1500 SWB CV 2WD	5.3L V-8	6,700 (g/i)
Express/Savana 1500 SWB CV AWD	5.3L V-8	6,500
Express/Savana 1500 SWB PV 2WD	5.3L V-8	6,200
Express/Savana 1500 SWB PV AWD	5.3L V-8	6,000
Express/Savana 2500 SWB CV 2WD	4.8L V-8	7,400 (g)
Express/Savana 2500 SWB CV 2WD	6.0L V-8	10,000 (g)
Express/Savana 2500 SWB CV 2WD	6.6 TD V-8	10,000
Express/Savana 2500 SWB PV 2WD	6.0L V-8	6,700 (g)
Express/Savana 2500 SWB PV 2WD	6.0L V-8	9,800 (g)
Express/Savana 2500 LWB CV 2WD	4.8L V-8	7,200 (g)
Express/Savana 2500 LWB CV 2WD	6.0L V-8	10,000 (g)
Express/Savana 2500 LWB CV 2WD	6.6 TD V-8	10,000
Express/Savana 3500 SWB CV 2WD	4.8L V-8	7,400 (g)
Express/Savana 3500 SWB CV 2WD	6.0L V-8	10,000 (g)
Express/Savana 3500 SWB CV 2WD	6.6 TD V-8	10,000
Express/Savana 3500 SWB PV 2WD	6.0L V-8	9,700 (g)
Express/Savana 3500 SWB PV 2WD	6.6 TD V-8	10,000
Express/Savana 3500 LWB CV 2WD	4.8L V-8	7,100 (g)
Express/Savana 3500 LWB CV 2WD	6.0L V-8	10,000 (g)
Express/Savana 3500 LWB CV 2WD	6.6 TD V-8	10,000
Express/Savana 3500 LWB PV 2WD	6.0L V-8	9,300 (g)
Express/Savana 3500 LWB PV 2WD	6.6 TD V-8	10,000

## Silverado/Sierra 1500 Reg Cab, Std Bed

1500 Reg Cab Std Bed 2WD	4.3L V-6	4,800 (e)
1500 Reg Cab Std Bed 2WD	4.3L V-6	5,400 (a,i)
1500 Reg Cab Std Bed 2WD	4.3L V-6	4,100 (m,i)

1500 Reg Cab Std Bed 2WD	4.8L V-8	4,700 (e)
1500 Reg Cab Std Bed 2WD	4.8L V-8	7,200 (i)
1500 Reg Cab Std Bed 2WD	5.3L V-8	6,600 (b)
1500 Reg Cab Std Bed 2WD	5.3L V-8	7,400 (b,p)
1500 Reg Cab Std Bed 2WD	5.3L V-8	9,100 (g,p)
1500 Reg Cab Std Bed 4WD	4.3L V-6	5,100 (i)
1500 Reg Cab Std Bed 4WD	4.8L V-8	6,000 (g)
1500 Reg Cab Std Bed 4WD	5.3L V-8	6,400 (b)
1500 Reg Cab Std Bed 4WD	5.3L V-8	7,100 (b,p)
1500 Reg Cab Std Bed 4WD	5.3L V-8	8,900 (g,p)

## Silverado/Sierra 1500 Ext Cab, Std Bed Conventional/Fifth-Wheel Towing

1500 Ext Cab Std Bed 2WD	4.3L V-6	4,400 (e)
1500 Ext Cab Std Bed 2WD	4.8L V-8	4,700 (e)
1500 Ext Cab Std Bed 2WD	4.8L V-8	6,700 (i)
1500 Ext Cab Std Bed 2WD	5.3L V-8	6,200 (b)
1500 Ext Cab Std Bed 2WD	5.3L V-8	6,900 (b,p)
1500 Ext Cab Std Bed 2WD	5.3L V-8	9,700/9,400 (g,p)
1500 Ext Cab Std Bed 2WD	6.2L V-8	9,700/9,400 (g,p)
1500 Ext Cab Std Bed 2WD	6.2L V-8	10,700/10,600 (i,t)
1500 Ext Cab Std Bed 4WD	4.8L V-8	5,500 (g)
1500 Ext Cab Std Bed 4WD	5.3L V-8	6,100 (b)
1500 Ext Cab Std Bed 4WD	5.3L V-8	6,800 (b,p)
1500 Ext Cab Std Bed 4WD	5.3L V-8	9,600 (g)
1500 Ext Cab Std Bed 4WD	6.2L V-8	9,400/9,100 (g,p)
1500 Ext Cab Std Bed 4WD	6.2L V-8	10,400/10,300 (i,t)

## Silverado/Sierra 1500 CC, Short Box

1500 CC Short Box 2WD	4.8L V-8	4,700 (e)
1500 CC Short Box 2WD	4.8L V-8	6,700 (i)
1500 CC Short Box 2WD	5.3L V-8	6,200 (b)
1500 CC Short Box 2WD	5.3L V-8	6,900 (b,p)
1500 CC Short Box 2WD (XFE)	5.3L V-8	7,000 (b)
1500 CC Short Box 2WD	5.3L V-8	9,600 (g,p)
1500 CC Short Box 2WD	6.2L V-8	9,700 (g,p)
1500 CC Short Box 2WD	6.2L V-8	10,600 (i,t)
1500 CC Short Box 4WD	4.8L V-8	5,500 (g)
1500 CC Short Box 4WD	5.3L V-8	6,000 (b)
1500 CC Short Box 4WD	5.3L V-8	6,700 (b,p)
1500 CC Short Box 4WD	5.3L V-8	9,500 (g)

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1500 CC Short Box 4WD	6.2L V-8	9,400 (g,p)
1500 CC Short Box 4WD	6.2L V-8	10,400 (i,t)

## Sierra Denali CC Shortbed, 1500 2WD and 4WD

Sierra Denali CC Shortbed 2WD	6.2L V-8	9,600 (p)
Sierra Denali CC Shortbed 4WD	6.2L V-8	9,400 (p)

## Silverado/Sierra 1500 Reg Cab LB

1500 Reg Cab LB 2WD	4.3L V-6	4,700 (a)
1500 Reg Cab LB 2WD	4.3L V-6	5,200 (s)
1500 Reg Cab LB 2WD	4.8L V-8	5,100 (a)
1500 Reg Cab LB 2WD	4.8L V-8	7,100 (s)
1500 Reg Cab LB 2WD	5.3L V-8	6,500 (d)
1500 Reg Cab LB 2WD	5.3L V-8	7,200 (d,k)
1500 Reg Cab LB 2WD	5.3L V-8	10,000/8,900 (q,k)
1500 Reg Cab LB 4WD	4.3L V-6	4,900 (i)
1500 Reg Cab LB 4WD	4.8L V-8	5,800 (g)
1500 Reg Cab LB 4WD	5.3L V-8	6,300 (b)
1500 Reg Cab LB 4WD	5.3L V-8	7,000 (b,p)
1500 Reg Cab LB 4WD	5.3L V-8	9,800/9,700 (g,p)

## Silverado/Sierra 1500 Ext Cab LB

1500 Ext Cab LB 2WD	5.3L V-8	6,000 (b)
1500 Ext Cab LB 2WD	5.3L V-8	6,700 (b,p)
1500 Ext Cab LB 2WD	5.3L V-8	9,500/9,000 (g,p)

## Silverado/Sierra Two-Mode Hybrid

Two-mode hybrid 2WD	6.0L V-8	6,100
Two-mode hybrid 4WD	6.0L V-8	5,900

## Silverado/Sierra 2500 Ext Cab Std Bed

2500 Ext Cab Std Bed 2WD	6.0L V-8	9,800 (i)
2500 Ext Cab Std Bed 2WD	6.0L V-8	13,000 (k)
2500 Ext Cab Std Bed 2WD	6.6L V-8 TD	17,500 (i)
2500 Ext Cab Std Bed 4WD	6.0L V-8	9,500 (i)
2500 Ext Cab Std Bed 4WD	6.0L V-8	13,000/14,300 (k)
2500 Ext Cab Std Bed 4WD	6.6L V-8 TD	16,400 (i)

## Silverado/Sierra 2500 CC Std Bed

2500 CC Std Bed 2WD	6.0L V-8	9,700 (s)
2500 CC Std Bed 2WD	6.0L V-8	13,000/14,200 (k)
2500 CC Std Bed 2WD	6.6L V-8 TD	17,400 (i)
Sierra Denali 2500 2WD	6.6L V-8 TD	16,500 (i)
2500 CC Std Bed 4WD	6.0L V-8	9,400 (i)
2500 CC Std Bed 4WD	6.0L V-8	13,000/13,900 (k)

2500 CC Std Bed 4WD	6.6L V-8 TD	15,800 (i)
Sierra Denali 2500 4WD	6.0L V-8	9,300 (i)
Sierra Denali 2500 4WD	6.6L V-8 TD	13,000 (k)

## Silverado/Sierra 2500 Reg Cab LB

2500 Reg Cab LB 2WD	6.0L V-8	10,200 (i)
2500 Reg Cab LB 2WD	6.0L V-8	13,000/14,700 (k)
2500 Reg Cab LB 2WD	6.6L V-8 TD	17,800 (i)
2500 Reg Cab LB 4WD	6.0L V-8	9,900 (i)
2500 Reg Cab LB 4WD	6.0L V-8	13,000/14,400 (k)
2500 Reg Cab LB 4WD	6.6L V-8 TD	17,500 (i)

## Silverado/Sierra 2500 Ext Cab LB

2500 Ext Cab LB 2WD	6.0L V-8	9,700 (i)
2500 Ext Cab LB 2WD	6.0L V-8	13,000/14,200 (k)
2500 Ext Cab LB 2WD	6.6L V-8 TD	17,400 (i)
2500 Ext Cab LB 4WD	6.0L V-8	9,400 (i)
2500 Ext Cab LB 4WD	6.0L V-8	13,000/13,900 (k)
2500 Ext Cab LB 4WD	6.6L V-8 TD	15,700 (i)

## Silverado/Sierra 2500 CC LB

2500 CC LB 2WD	6.0L V-8	9,600 (i)
2500 CC LB 2WD	6.0L V-8	13,000/14,100 (k)
2500 CC LB 2WD	6.6L V-8 TD	16,700 (i)
2500 CC LB 4WD	6.0L V-8	9,300 (i)
2500 CC LB 4WD	6.0L V-8	13,000/13,800 (k)
2500 CC LB 4WD	6.6L V-8 TD	14,700 (i)

## Silverado/Sierra 3500 Reg Cab

3500 Reg Cab SRW 2WD	6.0L V-8	13,000/14,500 (k)
3500 Reg Cab DRW 2WD	6.0L V-8	9,600 (i)
3500 Reg Cab DRW 2WD	6.0L V-8	14,100 (k)
3500 Reg Cab SRW 4WD	6.0L V-8	9,700 (i)
3500 Reg Cab SRW 4WD	6.0L V-8	13,000/14,200 (k)
3500 Reg Cab SRW 4WD	6.6L V-8 TD	17,400 (i)
3500 Reg Cab DRW 4WD	6.0L V-8	9,300 (i)
3500 Reg Cab DRW 4WD	6.0L V-8	13,800 (k)
3500 Reg Cab DRW 4WD	6.6L V-8 TD	23,000 (i)

## Silverado/Sierra 3500 Ext Cab

3500 Ext Cab SRW 2WD	6.0L V-8	9,500 (i)
3500 Ext Cab SRW 2WD	6.0L V-8	13,000/14,000 (k)
3500 Ext Cab SRW 2WD	6.6L V-8 TD	17,300 (i)
3500 Ext Cab DRW 2WD	6.0L V-8	9,100 (i)
3500 Ext Cab DRW 2WD	6.0L V-8	13,600 (k)

**ALWAYS CHECK WITH YOUR VEHICLE MANUFACTURER FOR FINAL TOWING RATINGS.**



3500 Ext Cab DRW 2WD	6.6L V-8 TD	22,800 (i)
3500 Ext Cab SRW 4WD	6.0L V-8	9,200 (i)
3500 Ext Cab SRW 4WD	6.0L V-8	13,000/13,700 (k)
3500 Ext Cab SRW 4WD	6.6L V-8 TD	16,900 (i)
3500 Ext Cab DRW 4WD	6.0L V-8	8,900 (i)
3500 Ext Cab DRW 4WD	6.0L V-8	13,400 (k)
3500 Ext Cab DRW 4WD	6.6L V-8 TD	22,600 (i)

#### Silverado/Sierra 3500 CC

3500 CC Std Bed SRW 2WD	6.0L V-8	9,500 (i)
3500 CC Std Bed SRW 2WD	6.0L V-8	13,000/14,000 (k)
3500 CC Std Bed SRW 2WD	6.6L V-8 TD	17,200 (i)
3500 CC Std Bed SRW 2WD Denali	6.6L V-8 TD	17,100 (i)
3500 CC Std Bed SRW 4WD	6.0L V-8	9,200 (i)
3500 CC Std Bed SRW 4WD	6.0L V-8	13,000/13,700 (k)
3500 CC Std Bed SRW 4WD	6.6L V-8 TD	17,000 (i)
3500 CC Std Bed SRW 4WD Denali	6.6L V-8 TD	16,800 (k)
3500 CC LB SRW 2WD	6.0L V-8	9,400 (i)
3500 CC LB SRW 2WD	6.0L V-8	13,000/13,900 (k)
3500 CC LB SRW 2WD	6.6L V-8 TD	17,300 (i)
3500 CC LB DRW 2WD	6.0L V-8	9,000 (i)
3500 CC LB DRW 2WD	6.0L V-8	13,500 (k)
3500 CC LB DRW 2WD	6.6L V-8 TD	22,800 (i)
3500 CC LB DRW 2WD Denali	6.6L V-8 TD	22,600 (i)
3500 CC LB SRW 4WD	6.0L V-8	9,100 (i)
3500 CC LB SRW 4WD	6.0L V-8	13,000/13,600 (k)
3500 CC LB SRW 4WD	6.6L V-8 TD	16,800 (i)
3500 CC LB DRW 4WD	6.0L V-8	8,700 (i)
3500 CC LB DRW 4WD	6.0L V-8	13,200 (k)
3500 CC LB DRW 4WD	6.6L V-8 TD	22,400 (i)
3500 CC LB DRW 4WD Denali	6.6L V-8 TD	22,300 (i)

#### Chevy Tahoe and Suburban, GMC Yukon, Yukon XL, Yukon and Yukon XL Denali 1500 Series

Tahoe/Yukon 2WD	5.3L V-8	5,500 (b)
Tahoe/Yukon 2WD	5.3L V-8	6,000 (g)
Tahoe/Yukon 2WD	5.3L V-8	8,500 (g,p)
Tahoe/Yukon Two-Mode Hybrid, 2WD	6.0L V-8	6,200
Tahoe/Yukon 4WD	5.3L V-8	5,200 (b)
Tahoe/Yukon 4WD	5.3L V-8	5,700 (g)
Tahoe/Yukon 4WD	5.3L V-8	8,200 (g,p)
Tahoe/Yukon Two-Mode Hybrid, 4WD	6.0L V-8	5,900
Suburban/Yukon XL 2WD	5.3L V-8	5,100 (b)
Suburban/Yukon XL 2WD	5.3L V-8	5,600 (g)
Suburban/Yukon XL 2WD	5.3L V-8	8,100 (g,p)

Suburban/Yukon XL 4WD	5.3L V-8	5,000 (b)
Suburban/Yukon XL 4WD	5.3L V-8	5,500 (g)
Suburban/Yukon XL 4WD	5.3L V-8	8,000 (g,p)
Yukon Denali 2WD	6.2L V-8	8,300
Yukon Denali AWD	6.2L V-8	8,100
Yukon XL Denali 2WD	6.2L V-8	7,900
Yukon XL Denali AWD	6.2L V-8	7,800

#### Chevy Suburban, GMC Yukon XL 2500

2500 Long Wheelbase 2WD	6.0L V-8	9,600
2500 Long Wheelbase 4WD	6.0L V-8	9,400

#### CHRYSLER/DODGE

Grand Caravan	3.6L V-6	3,600 (t)
Journey FWD and AWD	3.6L V-6	2,500 (t)
Town and Country	3.6L V-6	3,600 (t)
Dodge Durango RWD	3.6 V-6	6,200
Dodge Durango RWD	5.7 V-8	7,400
Dodge Durango AWD	3.6 V-6	6,200
Dodge Durango AWD	5.7 V-8	7,200

#### Ram 1500 Regular Cab Shortbed

1500 Reg Cab SB 2WD	3.7L V-6	3,750 (a4,h/i)
1500 Reg Cab SB 2WD	4.7L V-8	7,600 (a5,h/i)
1500 Reg Cab SB 2WD	5.7L V-8	7,100 (a5,d)
1500 Reg Cab SB 2WD	5.7L V-8	9,100 (a5,h/i)
1500 Reg Cab SB 2WD R/T model	5.7L V-8	5,000 (a5,k)
1500 Reg Cab SB 4WD	4.7L V-8	7,450 (a5,h/i)
1500 Reg Cab SB 4WD	5.7L V-8	8,900 (a5,h/i)

#### Ram 1500 Regular Cab Longbed

1500 Reg Cab LB 2WD	3.7L V-6	3,600 (a4,h/i)
1500 Reg Cab LB 2WD	4.7L V-8	7,450 (a5,h/i)
1500 Reg Cab LB 2WD	5.7L V-8	6,900 (a5,d)
1500 Reg Cab LB 2WD	5.7L V-8	8,900 (a5,h)
1500 Reg Cab LB 2WD	5.7L V-8	10,400 (a5,j)
1500 Reg Cab LB 4WD	4.7L V-8	7,300 (a5,h/i)
1500 Reg Cab LB 4WD	5.7L V-8	8,750 (a5,h)
1500 Reg Cab LB 4WD	5.7L V-8	10,450 (a5,j)

#### Ram 1500 Quad Cab

Ram 1500 Quad Cab 2WD	3.7L V-6	3,450 (a4,h/i)
Ram 1500 Quad Cab 2WD	4.7L V-8	7,300 (a5,h/i)
Ram 1500 Quad Cab 2WD	5.7L V-8	6,750 (a5,d)
Ram 1500 Quad Cab 2WD	5.7L V-8	8,700 (a5,h)

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Ram 1500 Quad Cab 2WD	5.7L V-8	10,250 (a5,j)
Ram 1500 Quad Cab 4WD	4.7L V-8	7,150 (a5,h/j)
Ram 1500 Quad Cab 4WD	5.7L V-8	8,550 (a5,h)
Ram 1500 Quad Cab 4WD	5.7L V-8	10,050 (a5,j)

## Ram 1500 Crew Cab

Ram 1500 CC 2WD	4.7L V-8	7,250 (a5,h/j)
Ram 1500 CC 2WD	5.7L V-8	6,700 (a5,d)
Ram 1500 CC 2WD	5.7L V-8	8,700 (a5,h)
Ram 1500 CC 2WD	5.7L V-8	10,200 (a5,j)
Ram 1500 CC 4WD	4.7L V-8	7,050 (a5,h/j)
Ram 1500 CC 4WD	5.7L V-8	8,500 (a5,h)
Ram 1500 CC 4WD	5.7L V-8	10,000 (a5,j)

## Ram 2500 Regular Cab Longbed

Ram 2500 LB 2WD	5.7L V-8	11,400 (a6,i)
Ram 2500 LB 2WD	5.7L V-8	14,400 (a6,k)
Ram 2500 LB 2WD	6.7L I-6 TD	12,400 (m6,g)
Ram 2500 LB 2WD	6.7L I-6 TD	13,400 (m6,i)
Ram 2500 LB 2WD	6.7L I-6 TD	10,500 (a6,g)
Ram 2500 LB 2WD	6.7L I-6 TD	13,500 (a6,i)
Ram 2500 LB 2WD	6.7L I-6 TD	15,500 (a6,k)
Ram 2500 LB 4WD	5.7L V-8	10,900 (a6,i)
Ram 2500 LB 4WD	5.7L V-8	13,900 (a6,k)
Ram 2500 LB 4WD	6.7L I-6 TD	12,000 (m6,g)
Ram 2500 LB 4WD	6.7L I-6 TD	13,000 (m6,i)
Ram 2500 LB 4WD	6.7L I-6 TD	10,050 (a6,g)
Ram 2500 LB 4WD	6.7L I-6 TD	13,050 (a6,i)
Ram 2500 LB 4WD	6.7L I-6 TD	15,050 (a6,k)

## Ram 2500 Crew Cab Shortbed

Ram 2500 Crew Cab SB 2WD	5.7L V-8	11,000 (a6,i)
Ram 2500 Crew Cab SB 2WD	5.7L V-8	14,000 (a6,k)
Ram 2500 Crew Cab SB 2WD	6.7L I-6 TD	12,050 (m6,g)
Ram 2500 Crew Cab SB 2WD	6.7L I-6 TD	13,050 (m6,i)
Ram 2500 Crew Cab SB 2WD	6.7L I-6 TD	10,150 (a6,g)
Ram 2500 Crew Cab SB 2WD	6.7L I-6 TD	13,150 (a6,i)
Ram 2500 Crew Cab SB 2WD	6.7L I-6 TD	15,150 (a6,k)
Ram 2500 Crew Cab SB 4WD	5.7L V-8	10,550 (a6,i)
Ram 2500 Crew Cab SB 4WD	5.7L V-8	13,550 (a6,k)
Ram 2500 Power Wagon 4WD	5.7L V-8	10,250 (a5,o)
Ram 2500 Crew Cab SB 4WD	6.7L I-6 TD	11,550 (m6,g)
Ram 2500 Crew Cab SB 4WD	6.7L I-6 TD	12,550 (m6,i)
Ram 2500 Crew Cab SB 4WD	6.7L I-6 TD	9,650 (a6,g)
Ram 2500 Crew Cab SB 4WD	6.7L I-6 TD	12,650 (a6,i)
Ram 2500 Crew Cab SB 4WD	6.7L I-6 TD	14,650 (a6,k)

## Ram 2500 Crew Cab Longbed

Ram 2500 Crew Cab LB 2WD	5.7L V-8	10,900 (a6,i)
Ram 2500 Crew Cab LB 2WD	5.7L V-8	13,900 (a6,k)
Ram 2500 Crew Cab LB 2WD	6.7L I-6 TD	11,900 (m6,g)
Ram 2500 Crew Cab LB 2WD	6.7L I-6 TD	12,900 (m6,i)
Ram 2500 Crew Cab LB 2WD	6.7L I-6 TD	10,000 (a6,g)
Ram 2500 Crew Cab LB 2WD	6.7L I-6 TD	13,000 (a6,i)
Ram 2500 Crew Cab LB 2WD	6.7L I-6 TD	15,000 (a6,k)
Ram 2500 Crew Cab LB 4WD	5.7L V-8	10,400 (a6,i)
Ram 2500 Crew Cab LB 4WD	5.7L V-8	13,400 (a6,k)
Ram 2500 Crew Cab LB 4WD	6.7L I-6 TD	11,500 (m6,g)
Ram 2500 Crew Cab LB 4WD	6.7L I-6 TD	12,500 (m6,i)
Ram 2500 Crew Cab LB 4WD	6.7L I-6 TD	9,600 (a6,g)
Ram 2500 Crew Cab LB 4WD	6.7L I-6 TD	12,600 (a6,i)
Ram 2500 Crew Cab LB 4WD	6.7L I-6 TD	14,600 (a6,k)

## Ram 2500 Mega Cab

Ram 2500 Mega Cab 2WD	5.7L V-8	10,600 (a6,i)
Ram 2500 Mega Cab 2WD	5.7L V-8	13,600 (a6,k)
Ram 2500 Mega Cab 2WD	6.7L I-6 TD	11,750 (m6,g)
Ram 2500 Mega Cab 2WD	6.7L I-6 TD	12,750 (m6,i)
Ram 2500 Mega Cab 2WD	6.7L I-6 TD	9,800 (a6,g)
Ram 2500 Mega Cab 2WD	6.7L I-6 TD	12,800 (a6,i)
Ram 2500 Mega Cab 2WD	6.7L I-6 TD	14,800 (a6,k)
Ram 2500 Mega Cab 4WD	5.7L V-8	10,150 (a6,i)
Ram 2500 Mega Cab 4WD	5.7L V-8	13,150 (a6,k)
Ram 2500 Mega Cab 4WD	6.7L I-6 TD	11,250 (m6,g)
Ram 2500 Mega Cab 4WD	6.7L I-6 TD	12,250 (m6,i)
Ram 2500 Mega Cab 4WD	6.7L I-6 TD	9,300 (a6,g)
Ram 2500 Mega Cab 4WD	6.7L I-6 TD	12,300 (a6,i)
Ram 2500 Mega Cab 4WD	6.7L I-6 TD	14,300 (a6,k)

## Ram 3500 Regular Cab Longbed

Ram 3500 Reg Cab LB DRW 2WD	6.7L I-6 TD	12,050 (m6,g)
Ram 3500 Reg Cab LB DRW 2WD	6.7L I-6 TD	14,050 (m6,i)
Ram 3500 Reg Cab LB DRW 2WD	6.7L I-6 TD	10,150 (a6,g)
Ram 3500 Reg Cab LB DRW 2WD	6.7L I-6 TD	14,050 (a6,i)
Ram 3500 Reg Cab LB DRW 2WD	6.7L I-6 TD	22,750 (a6,k)
Ram 3500 Reg Cab LB DRW 4WD	6.7L I-6 TD	11,600 (m6,g)
Ram 3500 Reg Cab LB DRW 4WD	6.7L I-6 TD	13,600 (m6,i)
Ram 3500 Reg Cab LB DRW 4WD	6.7L I-6 TD	9,700 (a6,g)
Ram 3500 Reg Cab LB DRW 4WD	6.7L I-6 TD	13,700 (a6,i)
Ram 3500 Reg Cab LB DRW 4WD	6.7L I-6 TD	22,300 (a6,k)

## Ram 3500 Crew Cab Shortbed

Ram 3500 Crew Cab SB SRW 2WD	6.7L I-6 TD	12,000 (m6,g)
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Ram 3500 Crew Cab SB SRW 2WD	6.7L I-6 TD	14,000 (m6,i)
Ram 3500 Crew Cab SB SRW 2WD	6.7L I-6 TD	10,050 (a6,g)
Ram 3500 Crew Cab SB SRW 2WD	6.7L I-6 TD	14,050 (a6,i)
Ram 3500 Crew Cab SB SRW 2WD	6.7L I-6 TD	17,050 (a6,k)
Ram 3500 Crew Cab SB SRW 4WD	6.7L I-6 TD	11,700 (m6,g)
Ram 3500 Crew Cab SB SRW 4WD	6.7L I-6 TD	13,700 (m6,i)
Ram 3500 Crew Cab SB SRW 4WD	6.7L I-6 TD	9,750 (a6,g)
Ram 3500 Crew Cab SB SRW 4WD	6.7L I-6 TD	13,750 (a6,i)
Ram 3500 Crew Cab SB SRW 4WD	6.7L I-6 TD	16,750 (a6,k)

#### Ram 3500 Crew Cab Longbed

Ram 3500 Crew Cab LB SRW 2WD	6.7L I-6 TD	11,850 (m6,g)
Ram 3500 Crew Cab LB SRW 2WD	6.7L I-6 TD	13,850 (m6,i)
Ram 3500 Crew Cab LB SRW 2WD	6.7L I-6 TD	9,900 (a6,g)
Ram 3500 Crew Cab LB SRW 2WD	6.7L I-6 TD	13,900 (a6,i)
Ram 3500 Crew Cab LB SRW 2WD	6.7L I-6 TD	16,900 (a6,k)
Ram 3500 Crew Cab LB DRW 2WD	6.7L I-6 TD	11,600 (m6,g)
Ram 3500 Crew Cab LB DRW 2WD	6.7L I-6 TD	13,600 (m6,i)
Ram 3500 Crew Cab LB DRW 2WD	6.7L I-6 TD	9,700 (a6,g)
Ram 3500 Crew Cab LB DRW 2WD	6.7L I-6 TD	13,700 (a6,i)
Ram 3500 Crew Cab LB DRW 2WD	6.7L I-6 TD	19,050 (a6,k)
Ram 3500 Crew Cab LB SRW 4WD	6.7L I-6 TD	11,550 (m6,g)
Ram 3500 Crew Cab LB SRW 4WD	6.7L I-6 TD	13,550 (m6,i)
Ram 3500 Crew Cab LB SRW 4WD	6.7L I-6 TD	9,650 (a6,g)
Ram 3500 Crew Cab LB SRW 4WD	6.7L I-6 TD	13,650 (a6,i)
Ram 3500 Crew Cab LB SRW 4WD	6.7L I-6 TD	16,650 (a6,k)
Ram 3500 Crew Cab LB DRW 4WD	6.7L I-6 TD	11,200 (m6,g)
Ram 3500 Crew Cab LB DRW 4WD	6.7L I-6 TD	13,200 (m6,i)
Ram 3500 Crew Cab LB DRW 4WD	6.7L I-6 TD	9,250 (a6,g)
Ram 3500 Crew Cab LB DRW 4WD	6.7L I-6 TD	13,250 (a6,i)
Ram 3500 Crew Cab LB DRW 4WD	6.7L I-6 TD	20,950 (a6,k)

#### Ram 3500 Mega Cab

Ram 3500 Mega Cab SRW 2WD	6.7L I-6 TD	11,700 (m6,g)
Ram 3500 Mega Cab SRW 2WD	6.7L I-6 TD	13,700 (m6,i)
Ram 3500 Mega Cab SRW 2WD	6.7L I-6 TD	9,750 (a6,g)
Ram 3500 Mega Cab SRW 2WD	6.7L I-6 TD	13,750 (a6,i)
Ram 3500 Mega Cab SRW 2WD	6.7L I-6 TD	16,750 (a6,k)
Ram 3500 Mega Cab DRW 2WD	6.7L I-6 TD	11,350 (m6,g)
Ram 3500 Mega Cab DRW 2WD	6.7L I-6 TD	13,350 (m6,i)
Ram 3500 Mega Cab DRW 2WD	6.7L I-6 TD	9,450 (a6,g)
Ram 3500 Mega Cab DRW 2WD	6.7L I-6 TD	13,450 (a6,i)
Ram 3500 Mega Cab DRW 2WD	6.7L I-6 TD	18,450 (a6,k)
Ram 3500 Mega Cab SRW 4WD	6.7L I-6 TD	11,350 (m6,g)
Ram 3500 Mega Cab SRW 4WD	6.7L I-6 TD	13,350 (m6,i)
Ram 3500 Mega Cab SRW 4WD	6.7L I-6 TD	9,400 (a6,g)

Ram 3500 Mega Cab SRW 4WD	6.7L I-6 TD	13,400 (a6,i)
Ram 3500 Mega Cab SRW 4WD	6.7L I-6 TD	16,400 (a6,k)
Ram 3500 Mega Cab DRW 4WD	6.7L I-6 TD	10,950 (m6,g)
Ram 3500 Mega Cab DRW 4WD	6.7L I-6 TD	12,950 (m6,i)
Ram 3500 Mega Cab DRW 4WD	6.7L I-6 TD	9,000 (a6,g)
Ram 3500 Mega Cab DRW 4WD	6.7L I-6 TD	13,000 (a6,i)
Ram 3500 Mega Cab DRW 4WD	6.7L I-6 TD	18,000 (a6,k)

## FORD

### E-Series Van/Wagon

E-150 Van	4.6L V-8	6,000 (i)
E-150 Van	4.6L V-8	6,500 (k)
E-150 Van	5.4L V-8	7,500 (i/k)
E-150 Extended Van	4.6L V-8	5,900 (i)
E-150 Extended Van	4.6L V-8	6,400 (k)
E-150 Extended Van	5.4L V-8	7,300 (i/k)
E-250 Van	4.6L V-8	6,000 (i)
E-250 Van	4.6L V-8	6,500 (k)
E-250 Van	5.4L V-8	7,400 (i/k)
E-250 Extended Van	4.6L V-8	5,900 (i)
E-250 Extended Van	4.6L V-8	6,400 (k)
E-250 Extended Van	5.4L V-8	7,300 (i/k)
E-350 Super Duty Van	5.4L V-8	7,400 (i/k)
E-350 Super Duty Van	6.8L V-10	9,100 (i)
E-350 Super Duty Van	6.8L V-10	10,000 (k)
E-350 Super Duty Extended Van	5.4L V-8	7,200 (i/k)
E-350 Super Duty Extended Van	6.8L V-10	9,000 (i)
E-350 Super Duty Extended Van	6.8L V-10	10,000 (k)
E-150 Wagon	4.6L V-8	5,600 (i)
E-150 Wagon	4.6L V-8	6,100 (k)
E-150 Wagon	5.4L V-8	7,000 (i/k)
E-350 Super Duty Wagon	5.4L V-8	6,700 i/k
E-350 Super Duty Wagon	6.8L V-10	8,500 (i)
E-350 Super Duty Wagon	6.8L V-10	10,000 (k)
E-350 Super Duty Ext. Wagon	5.4L V-8	6,500 (i/k)*
E-350 Super Duty Ext. Wagon	6.8L V-10	8,300 (i)*
E-350 Super Duty Ext. Wagon	6.8L V-10	10,000 (k)*

\*Ratings for 11-passenger van. Ratings for 14-15-passenger van up to 200 lb. less.

### Edge, Escape, Explorer, Expedition, Flex

Edge	3.5L V-6	3,500 (t)
Edge	3.7 V-6	2,000*
*Sport model w/ 22-inch wheels		
Escape	3.0L V-6	3,500 (t)
Explorer	2.0L TC	2,000

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Explorer	3.5L V-6	2,000
Explorer	3.5L V-6	5,000 (t)
Expedition 2WD/4WD	5.4L V-8	6,000 (all)
Expedition 2WD	5.4L V-8	9,200 (t)
Expedition 4WD	5.4L V-8	8,900 (t)
Expedition EL 2WD	5.4L V-8	6,000
Expedition EL 2WD	5.4L V-8	8,900 (t)
Expedition EL 4WD	5.4L V-8	6,000
Expedition EL 4WD	5.4L V-8	8,700 (t)
Flex	3.5L V-6	4,500 (t)

## F-150

F-150 Reg. Cab SB 2WD	3.7L V-6	5,500 (h)
F-150 Reg. Cab SB 2WD	3.7L V-6	6,000 (i)
F-150 Reg. Cab SB 2WD	5.0L V-8	7,900 (f)
F-150 Reg. Cab SB 2WD	5.0L V-8	8,300 (h)
F-150 Reg. Cab LB 2WD	3.7L V-6	5,600 (h)
F-150 Reg. Cab LB 2WD	3.7L V-6	6,100 (i)
F-150 Reg. Cab LB 2WD	5.0L V-8	8,400 (f)
F-150 Reg. Cab LB 2WD	5.0L V-8	9,800 (h)
F-150 Reg. Cab LB 2WD	5.0L V-8	10,000 (i)
F-150 Reg. Cab LB 2WD	3.5L V-6 TC	8,800 (c)
F-150 Reg. Cab LB 2WD	3.5L V-6 TC	9,800 (h)
F-150 Reg. Cab LB 2WD	3.5L V-6 TC	11,300 (i,t)*
F-150 Reg. Cab SB 4WD	3.7L V-6	5,700 (i)
F-150 Reg. Cab SB 4WD	5.0L V-8	7,600 (h)
F-150 Reg. Cab SB 4WD	5.0L V-8	8,000 (i)
F-150 Reg. Cab LB 4WD	3.7L V-6	5,900 (i)
F-150 Reg. Cab LB 4WD	5.0L V-8	8,100 (h)
F-150 Reg. Cab LB 4WD	5.0L V-8	9,700 (i)
F-150 Reg. Cab LB 4WD	3.5L V-6 TC	8,500 (f)
F-150 Reg. Cab LB 4WD	3.5L V-6 TC	9,700 (h/i)
F-150 Reg. Cab LB 4WD	3.5L V-6 TC	11,300 (i,t)*
F-150 SuperCab Std. Bed 2WD	3.7L V-6	5,800 (i)
F-150 SuperCab Std. Bed 2WD	5.0L V-8	8,100 (f)
F-150 SuperCab Std. Bed 2WD	5.0L V-8	9,500 (h)
F-150 SuperCab Std. Bed 2WD	3.5L V-6 TC	8,600 (c)
F-150 SuperCab Std. Bed 2WD	3.5L V-6 TC	9,800 (h)
F-150 SuperCab Std. Bed 2WD	3.5L V-6 TC	11,300 (i,t)
F-150 SuperCab LB 2WD	5.0L V-8	7,900 (f)
F-150 SuperCab LB 2WD	5.0L V-8	9,300 (h)
F-150 SuperCab LB 2WD	5.0L V-8	9,600 (i)
F-150 SuperCab LB 2WD	3.5L V-6 TC	8,400 (c)
F-150 SuperCab LB 2WD	3.5L V-6 TC	9,600 (h)
F-150 SuperCab LB 2WD	3.5L V-6 TC	11,300 (i,t)*
F-150 SuperCab Shortbed 4WD	6.2L V-8	6,000 (k)

F-150 SuperCab Std. Bed 4WD	3.7L V-6	5,500 (i)
F-150 SuperCab Std. Bed 4WD	5.0L V-8	7,800 (h)
F-150 SuperCab Std. Bed 4WD	5.0L V-8	9,400 (i)
F-150 SuperCab Std. Bed 4WD	3.5L V-6 TC	8,300 (f)
F-150 SuperCab Std. Bed 4WD	3.5L V-6 TC	9,700 (h/i)
F-150 SuperCab Std. Bed 4WD	3.5L V-6 TC	11,300 (i,t)
F-150 SuperCab Longbed 4WD	5.0L V-8	7,600 (h)
F-150 SuperCab Longbed 4WD	5.0L V-8	9,300 (i)*
F-150 SuperCab Longbed 4WD	3.5L V-6 TC	8,200 (f)
F-150 SuperCab Longbed 4WD	3.5L V-6 TC	9,600 (h/i)
F-150 SuperCab Longbed 4WD	3.5L V-6 TC	11,100 (i/k,t)*
F-150 SuperCrew Cab Shortbed 2WD	3.7L V-6	5,700 (i)
F-150 SuperCrew Cab Shortbed 2WD	5.0L V-8	8,000 (f/h)
F-150 SuperCrew Cab Shortbed 2WD	5.0L V-8	9,400 (i)
F-150 SuperCrew Cab Shortbed 2WD	3.5L V-6 TC	8,500 (c)
F-150 SuperCrew Cab Shortbed 2WD	3.5L V-6 TC	9,800 (h)
F-150 SuperCrew Cab Shortbed 2WD	3.5L V-6 TC	11,300 (i,t)
F-150 SuperCrew Cab Shortbed 2WD	6.2L V-8	11,300 (i,t)
F-150 SuperCrew Cab H-D Edition	6.2L V-8	7,500 (i)
F-150 SuperCrew Cab Std. Bed 2WD	5.0L V-8	7,900 (f/h)
F-150 SuperCrew Cab Std. Bed 2WD	5.0L V-8	9,500 (i)*
F-150 SuperCrew Cab Std. Bed 2WD	3.5L V-6 TC	8,400 (c)
F-150 SuperCrew Cab Std. Bed 2WD	3.5L V-6 TC	9,700 (h)
F-150 SuperCrew Cab Std. Bed 2WD	3.5L V-6 TC	11,300 (i,t)
F-150 SuperCrew Cab Std. Bed 2WD	6.2L V-8	11,200 (i)
F-150 SuperCrew Cab Shortbed 4WD	5.0L V-8	7,700 (h)
F-150 SuperCrew Cab Shortbed 4WD	5.0L V-8	9,300 (i)
F-150 SuperCrew Cab Shortbed 4WD	3.5L V-6 TC	8,100 (f)
F-150 SuperCrew Cab Shortbed 4WD	3.5L V-6 TC	9,600 (h/i)
F-150 SuperCrew Cab Shortbed 4WD	3.5L V-6 TC	11,200 (i/k,t)
F-150 SuperCrew Cab Shortbed 4WD	6.2L V-8	11,100 (i,k)
F-150 SuperCrew H-D Edition 4WD	6.2L V-8	7,300 (i)
F-150 Raptor	6.2L V-8	8,000 (k)
F-150 SuperCrew Cab Std. Bed 4WD	5.0L V-8	7,500 (h)
F-150 SuperCrew Cab Std. Bed 4WD	5.0L V-8	9,200 (i)*
F-150 SuperCrew Cab Std. Bed 4WD	3.5L V-6 TC	8,000 (f)
F-150 SuperCrew Cab Std. Bed 4WD	3.5L V-6 TC	9,500 (h/i)
F-150 SuperCrew Cab Std. Bed 4WD	3.5L V-6 TC	11,100 (i/k,t)

\* Requires heavy-duty payload package

## F-250/F-350/F-450 Super Duty, Conventional Towing

F-250/350 Reg. Cab SRW 2WD	6.2L V-8	12,500
F-250/350 Reg. Cab SRW 2WD	6.7L V-8 TD	12,500
F-250/350 Reg. Cab SRW 4WD	6.2L V-8	12,400 (i)
F-250/350 Reg. Cab SRW 4WD	6.2L V-8	12,500 (l)



F-250/350 Reg. Cab SRW 4WD	6.7L V-8 TD	12,500
F-350 Reg. Cab DRW 2WD	6.2L V-8	12,900 (i)
F-350 Reg. Cab DRW 2WD	6.2L V-8	15,000 (i)
F-350 Reg. Cab DRW 2WD	6.7L V-8 TD	15,000
F-350 Reg. Cab DRW 4WD	6.2L V-8	12,500 (i)
F-350 Reg. Cab DRW 4WD	6.2L V-8	15,000 (i)
F-350 Reg. Cab DRW 4WD	6.7L V-8 TD	15,000
F-250/F350 SC SRW 2WD	6.2L V-8	12,500
F-250/F350 SC SRW 2WD	6.7L V-8 TD	14,000
F-250 SC SRW 4WD	6.2L V-8	12,200 (i)
F-250 SC SRW 4WD	6.2L V-8	12,500 (i)
F-250 SC SRW 4WD	6.7L V-8 TD	14,000
F-350 SC SRW 4WD	6.2L V-8	12,100 (i)
F-350 SC SRW 4WD	6.2L V-8	12,500 (i)
F-350 SC SRW 4WD	6.7L V-8 TD	14,000
F-350 SC DRW 2WD	6.2L V-8	12,500 (i)
F-350 SC DRW 2WD	6.2L V-8	15,000 (i)
F-350 SC DRW 2WD	6.7L V-8 TD	15,000
F-350 SC DRW 4WD	6.2L V-8	12,100 (i)
F-350 SC DRW 4WD	6.2L V-8	15,000 (i)
F-350 SC DRW 4WD	6.7L V-8 TD	15,000
F-250/350 CC SRW 2WD	6.2L V-8	12,400 (i)
F-250/350 CC SRW 2WD	6.2L V-8	12,500 (k)
F-250/350 CC SRW 2WD	6.7L V-8 TD	14,000
F-250 CC SRW 4WD	6.2L V-8	12,000 (i)
F-250 CC SRW 4WD	6.2L V-8	12,500 (i)
F-250 CC SRW 4WD	6.7L V-8 TD	14,000
F-350 CC SRW 4WD	6.2L V-8	12,000 (i)
F-350 CC SRW 4WD	6.2L V-8	12,500 (i)
F-350 CC SRW 4WD	6.7L V-8 TD	14,000
F-350 CC DRW 2WD	6.2L V-8	12,300 (i)
F-350 CC DRW 2WD	6.2L V-8	15,000 (i)
F-350 CC DRW 2WD	6.7L V-8 TD	17,500
F-350 CC DRW 4WD	6.2L V-8	11,900 (i)
F-350 CC DRW 4WD	6.2L V-8	14,900 (i)
F-350 CC DRW 4WD	6.7L V-8 TD	17,500
F-450 DRW 4WD	6.7L V-8 TD	17,500

#### F-250/F-350/F-450 Super Duty, Fifth-Wheel Towing

F-250/350 Reg. Cab SRW 2WD	6.2L V-8	12,800 (i)
F-250/350 Reg. Cab SRW 2WD	6.2L V-8	15,800 (i)
F-250/350 Reg. Cab SRW 2WD	6.7L V-8 TD	16,700 (f/h)
F-250/350 Reg. Cab SRW 4WD	6.2L V-8	12,300 (i)
F-250/350 Reg. Cab SRW 4WD	6.2L V-8	15,300 (i)
F-250/350 Reg. Cab SRW 4WD	6.7L V-8 TD	16,200 (f/h)
F-350 Reg. Cab DRW 2WD	6.2L V-8	12,800 (i)

F-350 Reg. Cab DRW 2WD	6.2L V-8	15,800 (i)
F-350 Reg. Cab DRW 2WD	6.7L V-8 TD	22,700 (i)
F-350 Reg. Cab DRW 4WD	6.2L V-8	12,400 (i)
F-350 Reg. Cab DRW 4WD	6.2L V-8	15,400 (i)
F-350 Reg. Cab DRW 4WD	6.7L V-8 TD	22,200 i
F-250/F-350 SC SRW 2WD	6.2L V-8	12,500 (i)
F-250/F-350 SC SRW 2WD	6.2L V-8	15,500 (i)
F-250/F-350 SC SRW 2WD	6.7L V-8 TD	16,300 (f/h)
F-250/F-350 SC SRW 4WD	6.2L V-8	12,100 (i)
F-250/F-350 SC SRW 4WD	6.2L V-8	15,100 (i)
F-250/F-350 SC SRW 4WD	6.7L V-8 TD	16,000 (f/h)
F-350 SC SRW 4WD	6.2L V-8	12,000 (i)
F-350 SC SRW 4WD	6.2L V-8	15,000 (i)
F-350 SC SRW 4WD	6.7L V-8 TD	15,900 (f/h)
F-350 SC DRW 2WD	6.2L V-8	12,400 (i)
F-350 SC DRW 2WD	6.2L V-8	15,400 (i)
F-350 SC DRW 2WD	6.7L V-8 TD	22,100 (i)
F-350 SC DRW 4WD	6.2L V-8	12,000 (i)
F-350 SC DRW 4WD	6.2L V-8	15,000 (i)
F-350 SC DRW 4WD	6.7L V-8 TD	21,700 (i)
F-250/F-350 CC SRW 2WD	6.2L V-8	12,300 (i)
F-250/F-350 CC SRW 2WD	6.2L V-8	15,300 (i)
F-250/F-350 CC SRW 2WD	6.7L V-8 TD	16,100 (f/h)
F-250 CC SRW 4WD	6.2L V-8	11,900 (i)
F-250 CC SRW 4WD	6.2L V-8	14,900 (i)
F-250 CC SRW 4WD	6.7L V-8 TD	15,200 (f/h)
F-350 CC SRW 4WD	6.2L V-8	11,900 (i)
F-350 CC SRW 4WD	6.2L V-8	14,900 (i)
F-350 CC SRW 4WD	6.7L V-8 TD	15,700 (f/h)
F-350 CC DRW 2WD	6.2L V-8	12,200 (i)
F-350 CC DRW 2WD	6.2L V-8	15,200 (i)
F-350 CC DRW 2WD	6.7L V-8 TD	21,900 (i)
F-350 CC DRW 4WD	6.2L V-8	11,700
F-350 CC DRW 4WD	6.2L V-8	14,700
F-350 CC DRW 4WD	6.7L V-8 TD	21,500*
F-450 CC DRW 4WD	6.7L V-8 TD	24,400

\* With pickup-box delete option

NOTE: Some F-350 models tow 100 lb. less than similarly equipped

F-250 models. Consult the 2012 Ford RV & Trailer Towing Guide for details.

#### HONDA

Odyssey	3.5L V-6	3,500
Pilot 2WD	3.5L V-6	2,000
Pilot 4WD	3.5L V-6	4,500
Ridgeline	3.5L V-6	5,000

# 2012 TOW RATINGS

## HYUNDAI

Santa Fe	2.4 I-4	2,000
Santa Fe	3.5 V-6	3,500
Tucson	All	2,000
Veracruz (all)	3.8L V-6	3,500 (t)

## INFINITI

QX56	5.6L V-8	8,500
FX35	3.5L V-6	2,000
FX50	5.0L V-8	3,500

## JEEP

Grand Cherokee 2WD	3.6L V-6	5,000
Grand Cherokee 2WD	5.7L V-8	7,400 (t)
Grand Cherokee 4WD	3.6L V-6	5,000
Grand Cherokee 4WD	5.7L V-8	7,200 (t)
Liberty 2WD	3.7L V-6	5,000 (t)
Liberty 4WD	3.7L V-6	5,000 (t)
Wrangler	3.6L V-6	2,000
Wrangler Unlimited	3.6L V-6	2,000 (d)
Wrangler Unlimited	3.6L V-6	3,500 (t)

## KIA

Sedona	3.8L V-6	3,500
Sorento	3.5L V-6	3,500
Sportage	2.4 I-4	2,000

## LAND ROVER

Land Rover LR2	3.2L I-6	3,500
Land Rover LR4	5.0L V-8	7,716
Range Rover	5.0L V-8	7,716
Range Rover Sport	all	7,716

## LEXUS

RX 350 AWD	3.5L V-6	3,500
RX 450h AWD (hybrid)	3.5L V-6	3,500
GX 470	4.6L V-8	6,500

## LINCOLN

MKT	all	4,500
MKX	all	3,500
Navigator 2WD	5.4L V-8	6,000
Navigator 2WD	5.4L V-8	9,000 (t)
Navigator L 2WD	5.4L V-8	6,000
Navigator L 2WD	5.4L V-8	8,700 (t)
Navigator 4WD	5.4L V-8	6,000
Navigator 4WD	5.4L V-8	8,700 (t)

Navigator L 4WD	5.4L V-8	6,000
Navigator L 4WD	5.4L V-8	8,500 (t)

## MAZDA

CX7 (all)	2.3L TC	2,000
CX9 (all)	3.7L V-6	3,500

## MERCEDES-BENZ

G550	5.5L V-8	3,500
G55 AMG	5.4L V-8	3,500
GLK	3.5L V-6	3,500
GL350 BlueTEC	3.0L TD V-6	7,500
GL450	4.6L V-8	7,500
GL550	5.5L V-8	7,500
ML350 BlueTEC	3.0L TD V-6	7,200
ML350 2WD	3.5L V-6	4,600
ML350 4WD	3.5L V-6	7,200

## MITSUBISHI

Outlander 2WD	3.0L V-6	2,000
Outlander 4WD	3.0L V-6	3,500

## NISSAN

Armada 2WD	5.6L V-8	8,200
Armada 4WD	5.6L V-8	9,000
Frontier KC 2WD	2.5L I-4	3,500
Frontier KC 2WD	4.0L V-6	6,500
Frontier KC 4WD	4.0L V-6	6,300
Frontier CC 2WD	4.0L V-6	6,300
Frontier CC 4WD	4.0L V-6	6,100
Murano	3.5L V-6	3,500
Pathfinder	4.0L V-6	6,000
Pathfinder	5.6L V-8	7,000
Quest	3.5 V-6	3,500
Titan KC 2WD SB	5.6L V-8	7,400
Titan KC 4WD SB	5.6L V-8	7,400
Titan KC 2WD SB	5.6L V-8	9,500*
Titan KC 4WD SB	5.6L V-8	9,400*
Titan KC 4WD SB PRO 4X	5.6L V-8	9,300
Titan CC 2WD	5.6L V-8	7,400
Titan CC 4WD	5.6L V-8	7,300
Titan CC 2WD	5.6L V-8	9,400*
Titan CC 4WD	5.6L V-8	9,300*
Titan Longbed CC 2WD	5.6L V-8	9,300
Titan Longbed CC 4WD	5.6L V-8	9,100
Xterra	4.0L V-6	5,000

\* With Premium Utility Package



## PORSCHE

Cayenne	All	7,716
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## SUBARU

Tribeca	3.6L H6	2,400
Tribeca	3.6L H6	3,500 (t)
Forester	2.5L H4	2,400
Outback	2.5L H4	2,700
Outback	3.6R H6	3,000

## SUZUKI

Equator Extended Cab	2.5L I-4	3,500
Equator Extended Cab	4.0L V-6	6,300
Equator Crew Cab 2WD	4.0L V-6	6,300
Equator Crew Cab 4WD	4.0L V-6	6,100
Grand Vitara	2.4L I-4	3,000

## TOYOTA

4Runner 2WD	2.7L I-4	2,000
4Runner 4WD	4.0L V-6	5,000
FJ Cruiser	4.0L V-6	4,700
Highlander	2.7L I-4	3,500 (t)
Highlander	3.5L V-6	2,000
Highlander	3.5L V-6	5,000 (t)
Highlander Hybrid	3.3L V-6	3,500
Land Cruiser	5.7L V-8	8,500
RAV4	3.5L V-6	2,000
RAV4	3.5L V-6	3,500 (t)
Sienna	3.5L V-6	3,500
Sequoia 2WD SR5	4.6L V-8	6,900
Sequoia 4WD SR5	4.6L V-8	6,600
Sequoia 2WD SR5	5.7L V-8	7,400
Sequoia 4WD SR5	5.7L V-8	7,100
Sequoia 2WD Ltd	5.7L V-8	7,300
Sequoia 4WD Ltd	5.7L V-8	7,100
Sequoia 2WD Platinum	5.7L V-8	7,200
Sequoia 4WD Platinum	5.7L V-8	7,000
Tacoma Reg. Cab	2.7L I-4	3,500
Tacoma Access Cab/X-Runner	2.7L I-4	3,500
Tacoma Access Cab 2WD/4WD	4.0L V-6	3,500
Tacoma Access Cab 2WD/4WD	4.0L V-6	6,500 (t)
Tacoma Double Cab 2WD/4WD	2.7L I-4	3,500
Tacoma Double Cab 2WD/4WD	4.0L V-6	3,500
Tacoma Double Cab 2WD/4WD	4.0L V-6	6,500 (t)
Tundra Reg. Cab SB 2WD	4.0L V-6	4,900
Tundra Reg. Cab SB 2WD	4.6L V-8	7,100

Tundra Reg. Cab SB 2WD	4.6L V-8	8,600 (t)
Tundra Reg. Cab SB 4WD	4.6L V-8	7,100
Tundra Reg. Cab SB 4WD	4.6L V-8	8,600 (t)
Tundra Reg. Cab LB 2WD	4.0L V-6	4,800
Tundra Reg. Cab LB 2WD	4.6L V-8	7,100
Tundra Reg. Cab LB 2WD	4.6L V-8	8,600 (t)
Tundra Reg. Cab LB 2WD	5.7L V-8	8,400
Tundra Reg. Cab LB 2WD	5.7L V-8	10,400 (t)
Tundra Reg. Cab LB 4WD	4.6L V-8	7,100
Tundra Reg. Cab LB 4WD	4.6L V-8	8,600 (t)
Tundra Reg. Cab LB 4WD	5.7L V-8	8,100
Tundra Reg. Cab LB 4WD	5.7L V-8	10,100 (t)
Tundra Double Cab SB 2WD	4.0L V-6	4,500
Tundra Double Cab SB 2WD	4.6L V-8	6,700
Tundra Double Cab SB 2WD	4.6L V-8	8,200 (t)
Tundra Double Cab SB 2WD	5.7L V-8	8,100
Tundra Double Cab SB 2WD	5.7L V-8	10,100 (t)
Tundra Double Cab SB 4WD	4.6L V-8	6,400
Tundra Double Cab SB 4WD	4.6L V-8	7,900 (t)
Tundra Double Cab SB 4WD	5.7L V-8	7,800
Tundra Double Cab SB 4WD	5.7L V-8	9,800 (t)
Tundra Double Cab LB 2WD	5.7L V-8	10,000
Tundra Double Cab LB 4WD	5.7L V-8	9,800
Tundra CrewMax 2WD	4.6L V-8	6,600
Tundra CrewMax 2WD	4.6L V-8	8,100 (t)
Tundra CrewMax 2WD	5.7L V-8	6,600
Tundra CrewMax 2WD	5.7L V-8	8,100 (t)
Tundra CrewMax 4WD	4.6L V-8	6,200
Tundra CrewMax 4WD	4.6L V-8	7,700 (t)
Tundra CrewMax 4WD	5.7L V-8	7,700
Tundra CrewMax 4WD	5.7L V-8	9,000 (t)

*NOTE: Toyota Tundra tow ratings vary depending on trim level and equipment selected. See your dealer for details.*

## VOLKSWAGEN

Tiguan	2.0L I-4TC	2,200
Touareg	All	7,700

## VOLVO

C30	2.5L I-5TC	2,000
S60	All	3,307
S80	All	3,300
XC60	All	3,300
XC70	All	3,300
XC90	All	5,000

# THE BASICS OF HITCHING

by Joel Donaldson



## Selecting and maintaining the proper hardware for your tow vehicle and trailer

**T**he process of buying a new travel trailer or fifth-wheel is wrought with choices. Negotiating a price; arranging financing; settling on a fair trade-in value for your old rig; then choosing insurance, floor-plans, décor schemes and optional equipment are only the beginning. However, one of the most important choices may be considered an afterthought: choosing the proper trailer hitch.

Fortunately, selecting the right hitch isn't difficult, nor is its installation — after locating a competent shop, that is. Maintaining proper adjustment of the hitch on an ongoing basis is important, and it has a large bearing on the safety and ease of trailer towing.

Trailers are available in two different designs: a travel trailer that's coupled to the rear of the tow vehicle by a conventional hitch ball, and a fifth-wheel trailer that utilizes a fifth-wheel (or gooseneck) hitch mounted in the truck bed, centered over the rear axle. The hitching methods are as different as the trailers and require specific knowledge by the installer and trailer owner.

### CONVENTIONAL HITCHES

All hitches are rated by their respective manufacturers to safely handle up to a specific gross vehicle weight (gvw), which is the weight of the trailer with full water and LP-gas cylinders and all supplies aboard. Several weight classes exist for hitches designed for towing conventional travel trailers.

Weight-carrying hitches are intended for lighter trailers because the entire trailer's hitch weight is carried on the ball and transferred to the rear axle of the tow vehicle, whereas weight-distributing hitches are designed to distribute the trailer's hitch weight to all axles of the tow vehicle and trailer, making larger, heavier trailers with considerably higher hitch weights towable without destabilizing the tow vehicle.

A travel trailer with ideal weight distribution will have a minimum hitch weight of about 12 percent of the gross weight, and the maximum can range upward to about 15 percent, provided it does not violate the rating of the hitch.

Except for the lightest folding trailers, hitches

rated Class II and higher are used for recreational towing, and they use a receiver bolted to the tow vehicle's frame. The hitch receiver — which may have box dimensions of 1 1/4 inches square, 2 inches square or 2 1/2 inches square, with the larger boxes for higher load ratings — accepts a slide-in ball mount (or draw bar), which is secured with a pin.

Besides serving as the trailer/receiver attachment point, the ball mount also is used in varying heights (known as “drop”) to couple the trailer in a level fashion (frame parallel to the road surface), which is desirable for best stability and trailer-brake performance. Some ball mounts are fixed, while others are adjustable.

Ball mounts used for weight-carrying hitches are quite different than those used for weight-distributing. The need for weight-distributing hitches varies with tow-vehicle type and trailer weight. A trailer with 350 pounds of hitch weight may present no challenge for a stiffly sprung, long-wheelbase HD pickup, while it may destabilize a softly sprung compact SUV. In general, a weight-distributing hitch will improve stability in most situations because weight resting on a hitch ball (when a weight-carrying hitch is used) loads the rear axle excessively by placing all of the hitch weight on that axle in addition to weight that is transferred from the front axle to the rear in a seesaw lever action.

Because many receivers are usable in either weight-carrying or weight-distributing configurations, depending on the ball mount, the receiver manufacturer may list both ratings.

Weight-distributing hitches should be used in many weight situations of Class II, and in most situations of Class III and above. Unlike their weight-carrying counterparts, these hitches typically use a much heavier ball mount (that's height-adjustable), plus a pair of spring bars that provide the leverage needed to distribute weight fore and aft.

## HITCH ADJUSTMENT

After having a weight-distributing hitch of proper weight rating installed, owners may take the rest for granted. This can be a costly error because an improperly adjusted weight-distributing hitch can contribute to trailer sway, which is a very undesirable, and unsafe, handling trait.

The keys to happy towing are proper hitch-ball height and proper tension on the spring



bars. When all aspects are correct, the tow vehicle and the trailer are at the proper ride height, which in most cases is level. One exception will be described later. Proper hitch adjustment helps prevent rear-axle overloading and improves braking and steering response.

Evaluating the proper adjustment of a weight-distributing hitch is relatively simple: The tow vehicle should maintain the same attitude before hitching that it does after hitching, measured at reference points at the front and rear bumpers or wheel wells. If it is level before hitching, it should be level afterward, although slightly lower due to the addition of hitch weight. A level attitude means the adequate load has been placed on the spring bars to distribute portions of the hitch weight equally to the front and rear axles. If the rear of the tow vehicle sags after hitching, then the spring-bar loading isn't adequate.

The exception to level attitude: If the tow vehicle is a stiffly sprung pickup and the rear of the truck is higher than the front, that attitude should be maintained after hitching. Such trucks often will carry heavy loads without the need for weight-distributing hitches and without sagging. But care must be exercised here. Although the truck may not look like it's sagging visually, the hitch weight carried by the rear axle may still create an unstable situation.

If the trailer is not level after the spring bars have been adjusted to create the proper tow-vehicle attitude, then the ball height should be corrected.

Trailer sway can be a problem if trailer balance or hitch adjustment are not correct because the trailer exerts steering leverage on the tow vehicle by virtue of being connected to the tow vehicle 3 or 4 feet behind the rear



## THE BASICS OF HITCHING

axle. With correct hitching, trailer balance may be a problem if the hitch weight is less than 10 percent of gross weight. It should be more than 10 percent (we recommend a minimum of 12 percent) for best stability.

Even with a well-balanced trailer and a properly adjusted hitch, use of a sway-control device is highly recommended. Often called sway bars (not to be confused with anti-roll bars fitted to axles of tow vehicles), sway-control devices are designed to damp rotation of the coupler on the hitch ball. They improve the handling characteristics of the trailer/tow vehicle combination whether the hitch method is weight-carrying or weight-distributing.

Sway-control devices are available in two different configurations, the most popular of which is one that employs a steel bar, attached to the ball mount, that is encased in a rail or tube attached to a small ball on the trailer A-frame. Inside the rail or tube is friction material that is clamped against the steel bar. Any pivoting of the trailer coupler on the bar causes the bar to slide within the rail, creating drag and damping sway. On larger trailers, it's often possible to use a pair of friction-type units for additional sway control.

One popular hitch, the Equal-i-zer, includes a friction feature in the hitch design in that the tips of spring bars create friction on trailer-frame brackets. Cam-type sway units work by modifying the operation of the spring bars on a weight-distributing hitch. As the trailer turns, a cam increases the tension on one of the bars, creating a force that tends to pull the trailer back into a straight line. The harder the trailer turns, the stronger this self-centering force becomes. Since this scheme relies on spring-bar tension, it's generally most effective on trailers with relatively high hitch weights (e.g., trailers requiring considerable spring-bar tension).

The Hensley Arrow and PullRite hitch systems

offer different approaches to controlling sway. The Hensley unit prevents sway through use of trapezoidal hitch linkages that make the tow vehicle and trailer act as a single unit, with no pivoting of the coupler on the ball unless the tow vehicle turns. Thus, during typical highway travel the tow vehicle and trailer are connected as non-articulated vehicles, and tend to function as a single unit. Even so, there is no restriction on the tow vehicle's capability for turns.

The PullRite, in effect, moves the hitch-pivot point to a location immediately aft of the tow vehicle's rear axle, dramatically reducing the leverage the trailer can exert on the tow vehicle.

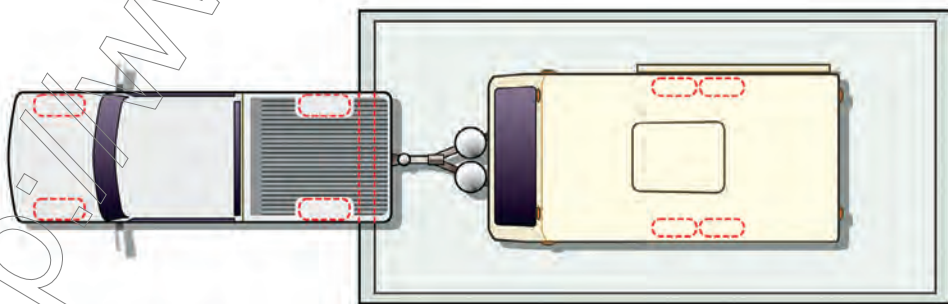
## FIFTH-WHEEL HITCHES

Fifth-wheel towing is a different story altogether. The trailer's kingpin serves as the pivot point for the fifth-wheel hitch, which is centered slightly ahead of or over the truck's rear axle. The trailer's kingpin slides into the hitch saddle, where it is secured by latching jaws or some other mechanism. This saddle is attached to a support base, which transfers the towing forces to the truck frame.

The design prevents the trailer from having any steering effect on the tow vehicle, and is what gives fifth-wheel trailers such good road manners. Wind gusts and road irregularities have little or no effect on tow-vehicle stability.

Most hitches are secured to the bed with a pair of mounting rails, while other underbed systems leave the truck bed flat after the hitch is removed.

Until recently, fifth-wheel hitches have been strictly aftermarket add-ons. But Ford and GM upped the ante with the availability of a factory-installed fifth-wheel (and gooseneck) hitch, providing clean installation and a factory warranty. The trailer's electrical connection has



**To determine weight, first get a reading on axle weight, then unhitch the trailer for a total weight reading (with the tow vehicle's wheels off the scale), and then subtract the two.**



been mounted into the side of the bed for added convenience.

Most removable aftermarket systems use permanently mounted rails with pins to secure the hitch saddle. The underbed style of the fifth-wheel-hitch mount is completely different in that the entire hitch mechanism is removed by simply pulling a lever in the wheel well. Pull-Rite also uses an underbed system with removable connection pins. Some systems, such as the B&W Turnover Ball and Companion, allow the hitch saddle and support base to be removed separately, making it easier on the back when lifting the hardware.

Many fifth-wheel hitches are mounted so they tilt fore and aft; however, having only the fore-and-aft pivot restricts side-to-side movement.

Some hitches have heads that pivot in multiple directions, allowing the pinbox to move in any direction with respect to the pickup, while still maintaining a tight mechanical connection.

This also makes it easier to hitch or unhitch the trailer on uneven ground.

Another strategy for improving trailer-truck flexibility involves the use of air springs as part of the hitch design. Typically, the hitch is suspended on multiple bladder-type air bags, which support most of the trailer's kingpin weight. Aside from providing considerable articulation, these bags are also capable of smoothing out much of the road shocks and vibration that would otherwise be transmitted from the trailer to the tow vehicle. Adjustments to the system can be accomplished by varying the amount of air pressure in the bags.

Other suspension-type hitches use a hinged pivot arm and a single airbag setup or a rubber spring in shear to provide truck-to-trailer impact damping while the hitch-saddle mechanism provides the side- and fore/aft head tilting.

Shortbed pickups are now more popular than ever, particularly among extended-cab



**USING A WEIGHT-CARRYING HITCH**



**USING A WEIGHT-DISTRIBUTING HITCH**

**A weight-distributing hitch distributes weight to all axles of the tow vehicle and the trailer.**

## THE BASICS OF HITING

**DRAW-TITE W-D HITCH**



**HENSLEY BD3 AIR-RIDE HITCH**



**EQUAL-I-ZER SWAY-CONTROL HITCH**



**HENSLEY CUB**



**REESE SIDEWINDER**



models. However, a short bed often causes complications when using the truck for towing a fifth-wheel because the proper hitch-mounting location is far enough forward to cause trailer-to-cab collisions during sharp turns. Installing an extended pinbox provides a workable solution with smaller trailers with modest pin-weights; however, owners should first check with the pinbox manufacturer before adding any extension.

One solution is a conventional hitch that can be manually unlocked and moved aft on a special set of rails before making tight turns. PullRite offers a hitch that performs this motion automatically, returning to the forward-towing position after the turn is completed. Rearward travel can be as much as 22 inches for some models, which is generally adequate for accommodating 102-inch-wide trailers. Turns as tight as 90 degrees are even possible.

Some companies offer manually moving hitches to accommodate sharp turns, but the owner is responsible for unlatching the mechanism. Another system, the Reese Sidewinder, uses a special pin box that automatically handles clearance problems.

Maximum weight ratings for fifth-wheel hitches range up to 25,500 pounds gross weight, with as much as 25 percent of it on the hitch (most fivers have 20 percent hitch weight or less), and it's best to choose a unit that not only will handle the trailer it will be used to tow, but also any possibility of a larger trailer, although a higher-rated hitch will cost more and will be slightly heavier.

Whether towing a conventional trailer or a fifth-wheel, the use of a properly rated hitch, adjusted correctly, will aid in creating a safer and more manageable towing experience. 🚚



# TRAILER-BRAKE CONTROLS

by Chuck Hammock



## Technological advances help smooth out the process and improve safety and reliability

**E**lectric-brake systems have been employed for several decades on most trailers that have any significant weight. Each trailer with electric brakes, in turn, also requires that the tow vehicle be fitted with a brake controller.

For years, brake-controller choices have been extensive — all aftermarket and all electronic. Ford changed the game in 2005 with the first trailer-brake-control (TBC) system included as a factory-installed integral part of the tow vehicle's design, and GM and Dodge have since followed suit. The TBC synchronizes vehicle and trailer brakes for seamless braking, even under heavy load, to provide added driving control and confidence.

Until the advent of anti-lock brake systems (ABS), most brake controllers were tapped directly into the hydraulic lines of the tow vehicle's onboard hydraulic-braking system. They were often described as hydraulic/electric brake controllers, as they converted hydraulic pressure in the tow vehicle's brake system to an electric signal used to activate the trailer's brakes directly proportional to hydraulic pressure in the vehicle's braking system. A significant factor in elimination of this system was the advent of ABS because the tow vehicle manufacturers cautioned against tapping into the hydraulic system.

### FORD'S TBC SYSTEM

As Ford was first to offer a factory-installed brake controller in the tow vehicle, let's look at its system. Ford's integrated controller electronically tracks hydraulic pressure inside the vehicle's master cylinder and uses the pressure, along



with vehicle speed, to modulate the amount of current produced for trailer brakes. Thus, the system accurately follows tow-vehicle braking with more at high pedal pressure, less at low, even to the point of using ABS. If the wheels of the tow vehicle are slipping, ABS goes into action for the tow vehicle as well as the trailer. The Ford system doesn't give the trailer the same functions and characteristics of true ABS, but when the truck's ABS is activated, the trailer-brake application is reduced to avoid wheel lockup, just as with true ABS. A dash monitor indicates the level of trailer braking, and a manual override is provided so the trailer brakes can be applied independently of tow-vehicle brakes. TBC-equipped Ford Super Duty trucks also enjoy an added element of safety; if the trailer is swaying, the TBC will actually apply the trailer brakes to help stabilize the trailer.

While the Ford brake control uses brake-pressure sensing, the GM and Dodge integrated controllers use inertia-type sensing to regulate trailer brake action. None of the systems can be retrofitted to earlier truck models, and aftermarket controllers still must be used for most other vehicles, so the demand for those aftermarket controllers remains quite large. Accordingly, it's

## TRAILER-BRAKE CONTROLS



TUSON DIRECLINK



HENSLEY TRUCONTROL GOLD

helpful to understand what's out there, and how to make a good choice.

In essence, all electronic brake controllers fall into two general categories: timer-based brake controllers and inertia-based proportional brake controllers. All brake controllers generate an output signal to a trailer-brake system when a user first touches the tow vehicle's brake pedal or activates the brake controller's manual control, if so equipped. What happens next varies greatly, depending on whether you're using a timer-based or proportional brake controller.

While most manufacturers identify their proportional brake controllers as such, you usually won't see the words "timer-based" in the literature for a nonproportional brake controller. Instead, marketers will sometimes advertise timer-based controllers as having the advantage of requiring no leveling, but even that idea is confusing. Several proportional brake controllers do not require leveling. Timer-based controllers are also touted as being microprocessor-operated, but all brake controllers contain a processor of some kind. Even the most sophisticated timer-based microprocessor doesn't determine how hard you are braking, but how long you've been braking. A good rule of thumb is that if it doesn't say the word "proportional" somewhere in the literature, it's probably a timer-based brake controller.

### TIMER-BASED VS. PROPORTIONAL

A timer-based brake controller has a timer that generates an output signal for your RV's brakes that increases with the amount of time you keep your foot on the brake pedal. It doesn't know whether you're braking gently on a gradual downhill grade, or if you're in a panic stop. The rate of increase in output (the slope of the voltage ramp) has no bearing on pedal effort, but can usually be adjusted for braking

aggressiveness.

An inertia-based proportional controller generates an output that is, as the name suggests, directly proportional to your braking needs. Most proportional brake controllers measure the tow vehicle's rate of deceleration by means of a pendulum. The quicker you slow, the farther the pendulum is displaced, via inertia, from its at-rest position. This creates an electric signal to your trailer's brakes that is proportional to your deceleration rate.

Tekonsha and its sister companies use a series of LEDs and photoelectric detectors in their proportional controllers to determine the position of the displaced pendulum, and therefore determine the deceleration rate. Hayes Lemmerz uses the Hall effect, a physics principle involving moving magnets, to determine the pendulum's position.

All pendulum controllers are subject to some inaccuracies, as the pendulum can tilt slightly forward or backward on steep grades. Most such controllers employ a damping device to stabilize the sensor against vibrations, and the damper helps reduce the effect of the fore-or-aft-tilt problem.

The pendulum's position is adjusted through the level-control knob, which allows the pendulum to be oriented to a true vertical resting position to compensate for the angle of the brake-controller body (the "leveling" referred to in some timer-based-controller advertising). The level adjustment also allows the driver to pitch the pendulum slightly forward or aft of its normal resting position to set up the trailer so the trailer's braking is aggressive or delayed.

Most drivers prefer some braking effect from the trailer's brakes on the initial touch of the brake pedal, and adjust the brake controller accordingly to provide this so-called threshold voltage. This adjustment produces



**HOPKINS AGILITY**



**HAYES G2 BRAKE BOSS**

some output (typically 2 volts), without the initial time period having passed or deceleration having occurred in the two electric brake-controller types. This time period, or deceleration event, is normally needed to activate the timer-based controller or the proportional pendulum-based controller, respectively.

With dozens of different models of brake controllers on the market, many RVers may find the selection of the right controller difficult without some form of guidance. While budgetary considerations may force a user into one category of controller, this is a critical system where pinching pennies may not be advisable.

When faced with the need for a panic stop, most drivers want a controller that will respond in proportion to their braking needs at that moment. Keep in mind that a timer-based controller can't respond in this manner, as its output is fixed for a certain timed duration.

Among more recent developments, solid-state accelerometers are being used to measure braking force. Tekonsha has embraced this technology in its Prodigy P2 brake control. Hayes uses an accelerometer in its G2 Brake Boss, as does Hensley Manufacturing in its high-tech TruControl trailer brake control. Tuson, a newcomer to the brake-controller world, offers the DirecLink, which is a true network-based unit. The DirecLink receives its data from the OBDII diagnostic port and provides proportional control of trailer brakes.

Some brake controllers aren't compatible with disc-brake systems on trailers; in such cases, the installation of a controller module — such as the Carlisle HydraStar — is necessary on the trailer in order ensure functional braking.

## AFTERMARKET INSTALLATION

Critical to every successful brake-controller installation is the proper tow-vehicle wiring. While you should carefully follow the manufacturer's

recommendations, there are certain common elements to almost every controller.

A reliable power source is a priority, which may include a vehicle's built-in circuitry for an aftermarket brake controller. The main power line should be at least a 10 AWG wire from a circuit breaker at the fuse box, or the battery, to the brake controller's power-input connection (follow specific instructions for your controller). The circuit should continue from the controller, without any splices, and terminate at the seven-pin connector found at the rear of your tow vehicle. Most manufacturers advise against grounding the controller to the vehicle's firewall, but recommend routing a 10 AWG (or larger) separate ground wire directly to the battery; the controller may not function properly if the ground connection is not made directly to the battery terminal.

The other connection is made to the brake-light circuit, downstream of the brake-light switch mounted to the brake-pedal assembly, so the controller senses when the brakes have been activated.

Later-model vehicles with towing packages have brake-control wiring bundled under the dash with a plug-in connector attached. A pigtail with the mating part of the connector is supplied with the vehicle and is ready for connection to the brake-control wiring. This setup avoids most of the complexity and possible mistakes with locating the correct wiring among that maze under the dash.

Today's RVer has many choices in brake controllers from many manufacturers. It's important to carefully select the controller that is right for your needs and capable of handling the weight and number of axles on your trailer.

Be sure to follow the manufacturer's written instructions about every aspect of the brake controller's installation, operation, adjustment and maintenance for optimum performance. 🚚



# TOWING PACKAGES

by Jeff Johnston

## What's included on these must-have tow-vehicle options?

**T**here are many bells and whistles available when choosing a new tow vehicle, but there's one option that is an absolute necessity: the towing package.

Plenty of advantages are involved in choosing factory-installed towing hardware. First, you have full warranty coverage on the equipment. Also, it was designed by the best engineering minds at a major auto manufacturer, which is reassuring when considering the hardware is tying your truck and trailer safely together. Plus, you'll probably save money over the cost of aftermarket hardware. And perhaps best of all, use of the factory options means being ready for the road is a turnkey operation that calls for few or no trips to specialty shops after leaving the dealership.

In many cases, you don't have a choice. If the vehicle is to be rated for its highest towing capacity, the towing-package option is mandatory to give the tow vehicle its optimum performance potential. For less-strenuous duty, the towing package is optional.

Check with the dealer to determine the content of the towing-package option. Following are some of the items you will likely encounter.

**Axle Ratio:** Most packages include a lower (numerically higher) axle ratio; for example, a 3.73:1 or 4.10:1 instead of the 3.55:1 that comes with the stock vehicle. A lower ratio results in greater torque multiplication at the rear wheels, which means more power for towing. It also means the engine turns somewhat



## **TOWING-PACKAGE COMPONENTS**

Overall packages vary by model, but here are some components that may be included:

**Hitch receiver (or fifth-wheel hitch)**

**4- and/or 7-pin connector**

**Larger alternator**

**Larger battery**

**Larger radiator**

**Additional electric fan(s)**

**Transmission-oil cooler**

**Engine-oil cooler**

**Rear anti-sway bar**

**Extendible mirrors**

**Vehicle Dynamic Control**

**Integrated brake controller**

**Brake controller (or unit pre-wire)**

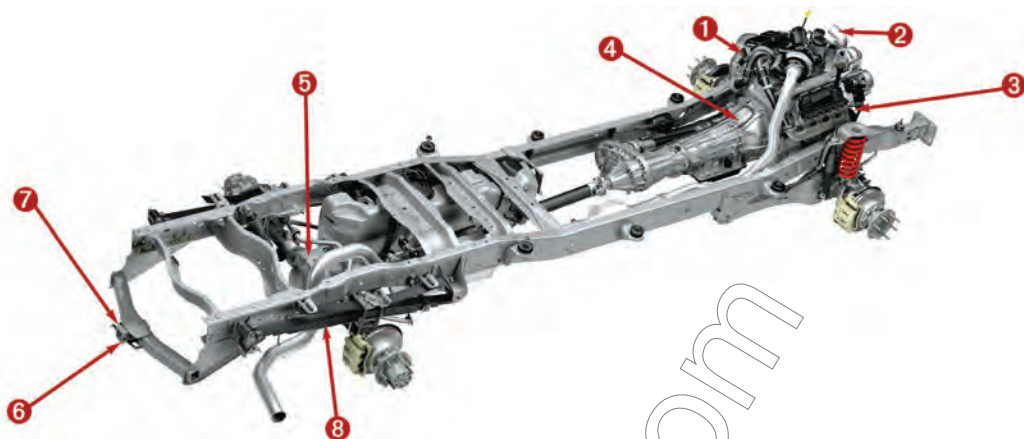
**Synthetic lubricants**

**Lower axle ratio**

**Re-valved shock absorbers**







- |                           |                                |
|---------------------------|--------------------------------|
| 1) ENGINE OPTION          | 5) TOWING AXLE RATIO           |
| 2) HD COOLING             | 6) HITCH RECEIVER              |
| 3) HD TRANSMISSION COOLER | 7) WIRING CONNECTOR            |
| 4) TRANSMISSION OPTION    | 8) SUSPENSION/ PAYLOAD PACKAGE |

faster for a given road speed, and thus gets slightly worse mileage, but that's the tradeoff for improved towing performance.

**Hitch Receiver:** If the tow vehicle already has a receiver, all you need to select is the proper ball mount and the associated hardware, such as a load-distributing hitch. The receiver will be properly matched to the tow vehicle's trailer-towing rating, so you needn't worry about any hitch-overloading situations — as long as you pay attention to the numbers. You'll also avoid interference problems with the exhaust pipe(s), the fuel tank and the spare tire. Some trucks — such as 2011 and later Ford Super Duty pickups — also feature a factory-installed fifth-wheel hitch.

**Wiring Package:** The wiring package is a

group of color-coded pigtails near the back bumper that is ready for installation of the trailer-plug receptacle. It can be as complete as a plug or two installed out back, or a pre-wired pigtail for brake-control installation under the dash and full integration with the tow vehicle's electric system.

**Alternator:** It takes extra charging current to keep a trailer's battery(ies) charged in addition to handling the electrical-power needs of the tow vehicle. The battery itself may also be larger.

**Heavy-Duty Suspension:** The trailer and its hitch weight add load on the tow-vehicle suspension, so the normal reaction among dealership sales staff and buyers is to order the optional heavy-duty (HD) suspension, par-



Ford's towing mirrors easily extend for optimum visibility of the trailer.



ticularly when fifth-wheel towing is involved. In fact, when the trailer is a conventional ball-type trailer, it's often best not to order a heavy-spring option if there is a choice (if the towing package does not include HD suspension) for trucks rated 8,600 pounds and higher because stiff ride and the tendency of the rear springs to do some or most of the work of the load-distributing hitch can be the result. A stiff ride is a very common complaint among owners of  $\frac{3}{4}$ -ton and one-ton pickups not towing fifth-wheels.

A case can be made for not ordering an HD suspension even for fifth-wheel towing — except in very high pin-weight situations — opting instead to install auxiliary springs or air bags after delivery to support the pin weight (if necessary). This allows a more civilized ride on standard rear springs while not towing. It's necessary to compare the standard and optional rear-axle-weight ratings relative to the anticipated trailer pin weight. It's easy to upgrade rear suspensions after a truck is built, but nearly impossible to soften the ride of an oversprung truck without replacing the suspension. SUVs have enough of their body weight on the rear axle, so that's generally not an issue.

**Brake Control:** Ford, Ram and GM HD pickups — and Ford half-ton trucks — all have factory-installed fully integrated trailer brake controls optionally available. This option is a no-brainer. If available, select it, as it's a terrific piece of equipment from the factory. Other-

wise, towing packages usually include a trailer-wiring harness with a circuit for an aftermarket brake-control unit, a very worthwhile component of the package (see page 33).

**Stability Control:** More manufacturers are now offering electronic stability control. In addition, all Ford F-150 2011 and newer trucks include Trailer Sway Control (TSC), which can determine the yaw motion (sway) of the truck and take action, from applying precise braking to reducing engine torque.

**Mirrors:** Many towing packages offer mirrors designed to be extended outward while towing trailers. Some Ford mirrors even collapse electronically.

**Extra Cooling:** The largest possible radiator, a larger transmission-oil cooler and often a power-steering-fluid cooler are essential parts of the usual HD cooling component of a towing package, and we advise that no tow vehicle should be ordered without them.

These components will not only help the tow vehicle avoid overheating any vital functional parts, but they will also lead to longer trouble-free component service life. 🗨️



## Plenty of practice and defensive driving skills lead to a safe and enjoyable RV experience

**T**railer towing isn't exactly rocket science, but it does represent a step up in complexity from driving a solo vehicle.

Towing requires new awareness of combined vehicle length, trailer width, braking distance, turning characteristics and several other important factors that must be considered while on the road.

Most of us drive trucks, SUVs or passenger cars daily, and tow an RV only occasionally while vacationing. Thus, it's always necessary to make a mental transition and try to keep the size and handling characteristics of the larger rig in mind.

Allowing solo-vehicle habits to take over may result in a tendency to make turns too tightly, to run over curbs, to hit stationary objects such as overhanging tree limbs or to follow too closely.

### PAY ATTENTION

The first towing precautions are those that precede towing — matching the tow vehicle and trailer correctly, adhering to weight limits and making sure hitch selection and adjustment are correct, as described elsewhere in this guide. It's also important to refresh defensive driving skills. From there, the real fun begins.

The combined length of the tow vehicle and the trailer, as well as the combined weight, must be in the front of your mind, right from the start. Maintaining extended following distances is one of the most important towing-related driving habits that initially is difficult to adhere to.

Even though trailer brakes may be functional, braking distances almost always are extended. It's also important to make lane changes carefully and slowly, and to allow extended distances for passing. High-quality, properly adjusted towing mirrors with large reflective areas are also essential. Some manufacturers have factory-installed extendible towing mirrors available, and most such factory mirrors work well these days, such as those seen on many Ford trucks. If you need aftermarket portable mirrors, solidly mounted units like those from McKesh are a good idea.

Speedy traffic seems more tolerant of slower







It's a good idea  
to practice  
maneuvering in a  
secluded spot until  
you're comfortable  
with your abilities.



18-wheelers than of slower RVs, which makes courtesy an important safety factor for RV owners because an irate driver trying to pass can pose a serious safety threat. Frequent monitoring of rearview mirrors is necessary while towing; when a vehicle is tailgating and trying to pass, we should help by driving slightly to the right to give the other driver a better view of the road ahead, even if a passing opportunity does not exist at the time. We should use turnouts whenever possible and avoid following another vehicle so closely that a vehicle overtaking from the rear cannot return to the proper lane.

## BRAKING

While tow-vehicle and trailer brakes are adequate for most situations, care is necessary to avoid overheating, which can lead to brake fade. If brake fade occurs, it will likely be on steep downgrades. Brake fade happens when friction raises the temperature of brake pads and linings to extremely high levels, resulting in temporary loss of braking.

fully integrated brake controls on full-size pickups, and these units all work very nicely and are valuable safety components.

When towing with a diesel, an aftermarket exhaust brake can be extremely beneficial, and many newer diesel trucks now offer fully integrated exhaust-brake control.

## TRAILER MANEUVERING

All trailers require more space for turns, and travel trailers follow the tow-vehicle track more closely than do fifth-wheels, which track farther to the inside of a turn. There is need for continual awareness, which should eventually become second-nature after a modest amount of on-the-road experience.

Fifth-wheel trailers are different to back than conventional trailers, and require more practice for someone accustomed to backing a conventional trailer. A well-used technique involves placing one's hand at the bottom of the steering wheel and moving it in the same direction the trailer is intended to go. It's more effective with travel trailers than with fifth-

**There is need for continual awareness, which should become second-nature after a modest amount of experience.**

The only known cure is prevention, such as downshifting to a gear range that is low enough to retard speed sufficiently that brakes need not be used more than occasionally. This way, enough braking performance is reserved to make an emergency stop, should it become necessary.

When braking on a grade is necessary, apply the brakes intermittently, with moderate pressure, and release the pedal to allow the brakes to cool.

The action of electric trailer brakes should be apparent to the driver, and sufficient to handle the trailer's weight. The controller should be adjusted so that maximum braking action does not cause trailer-wheel lockup. Improper controller adjustment is a major cause of inadequate braking, so it's wise to study the manufacturer's instructions. Travel-trailer instability (fishtailing) should not occur in a well-balanced, well-hitched combination, but if it does, independent actuation of trailer brakes usually will bring the trailer back into line. Ford, GM and Dodge all offer factory-installed,

wheels, which often require more turning of the steering wheel.

Handheld two-way radios can allow an assistant to more effectively relay backing instructions to the driver. In addition, back-up cameras — such as those available on many Ford and other trucks — help ease the difficulty of hitching up when a helper isn't available.

Before each trip, it's essential to check the tires to assure that inflation pressures match those molded on tire sidewalls (cold), or that they are appropriate for your load (consult the tire and vehicle load/inflation tables). Also, be sure to inspect all vehicle fluids, per standard maintenance procedure during heavy-duty vehicle use cycles, and make sure trailer-wheel lug nuts are tightened to factory specifications.

Trailering is a great way to explore the new horizons and a great way to check out the wonderful camping destinations that are available to owners of recreational trailers. And always keep in mind that defensive driving will pay off in safe travel. 🚚