The Ranger Station

Ford Ranger Rear Axles

Most Rangers are equipped with the Ford 7.5-inch rear axle with several exceptions:

1) 1986-up "Incomplete vehicles" also known as "Chassis Cabs" were frequently equipped with 8.8" 28-spline axles, the '86-88 examples are distinctive as they are the only 8.8" Ranger rears that have no provisions for a RABS sensor.

2) 1990 & up 4.0-liter Rangers. These are ALWAYS equipped with the 8.8-inch 28-spline rear axle.

3) 1998-up 4x4 supercab Rangers regardless of powerplant are frequently equipped with 8.8" axles

4) FX4 Rangers 99-current come equipped with an 8.8 rear and 31-spline axles with either 4.10 or 4.56 axle ratios.

Swapping in an 8.8-inch 28-spline Ranger axle for the original 7.5-inch axle provides (according to Ford) a 35% increase in strength. But this strength increase refers to the greater strength of the gears and carrier bearings (Pinion bearings, axle bearings and axle shafts are exactly the same) there is NO increase in weight capacity If you are looking for greater strength for loads created by severe offroad driving or towing you'll want to go to the next step, the Explorer axle.

The rear axles on all Ford Explorers are also 8.8's, however there are some differences... The 8.8-inch Explorer axle use 31-spline axle shaft. Increasing from a 28-spline to a 31-spline axle allegedly increases strength of the axle shaft by 34%, however I'll go by the capacity ratings of the axle assemblies provided by the manufacturer. Ford Rates the Ranger axle at 2750lbs and the Explorer axle at 3200lbs this is a 16% increase in strength, which admittedly may be as conservative as the estimate of axle strength. The Important thing about the Explorer axle assembly vis-a-vie it's strength is not the axles that are larger at the splines but that these axles are larger in diameter at the outer bearing journal AND the larger diameter bearings used.

What axle do you have now?

You can identify which axle you have by the tag attached to the inspection cover.

Some feel better having disc brakes (I'll discuss this elsewhere:) and if you want discs then look for a Explorer '95-01, as these are the ones with the disks brakes. '91-94 axle assemblies are just as strong, but have 10" drums (Which are more easily connected to your existing hydraulic lines and Parking brake cables)

7.5-inch Rear Specifications	8.8-inch Rear Specifications
7.5-Inch Ring Gear	8.8-Inch Ring Gear
1.626" Pinion Stem	1.626" Pinion Stem

Swapping a Ranger 7.5-inch to a Ranger 8.8-inch is a direct replacement. Swapping in a stronger 8.8-inch from an Explorer requires mounting the spring perches from under to over the axle. This should be done by a reputable welder. The '95 & newer Explorer 8.8-inch axles have disk brakes. The master cylinders in the Rangers are not calibrated for rear disk brakes. When converting to rear disks you should replace your master cylinder with one from a rear disk brake Explorer.

C-Clips:

The 7.5-inch and 8.8-inch axles retain the axles using C-Clips. A broken C-Clip axle will slide out of the axle tube. C-Clip eliminators are available which hold the axle in the axle tube.
Ford Part# M-4220-A
Jegs Part# 873-A1092

Axle Girdle:

Serious Off-Roaders should consider installing an Axle Girdle. They Replace the existing inspection cover and provide support to the differential bearing caps. They also increase the fluid capacity.
Ford Part# M-4033-G (8.8-inch)
Ford Part# M-4033-J (7.5-inch)
Jegs Part# 6-9-101-8.8 (8.8-inch)

Ranger Axle Codes:

Rear axle codes can be found on the Safety Standard Certification label attached to the left drivers side door lock post. The code appears as a number or letter/number combination in the 'Axle' column of the label. The axle can also be identified by the tag on the axle differential cover bolt. See the diagram above to learn how to read the tag.

Axle Codes

Axle codes for Ranger, Bronco2, Explorer and Aerostar (included because 4.10 gears and limited slips are more common than you'd expect)

Aerostar

Code	Description	Capacity	Ratio
22	open 7.5"	2950	4.10
23	open 7.5"	2950	3.45
24	open 7.5"	2950	3.73
25	open 8.8"	2950	3.27
29	open 8.8"	2950	3.55
B2	L/S 7.5"	2950	4.10
B4	L/S 7.5"	2950	3.73

B5	L/S 8.8"	2950	3.55
B9	L/S 8.8"	2950	3.27

(Note: Aerostars with axle codes starting with "1" are Spicer/Dana 30 axles with Aluminum housings)

Bronco II

Code	Description	Capacity	Ratio
42	open 7.5"	2640	3.45
44	open 7.5"	2640	3.73
47	open 7.5"	2640	4.10
D2	L/S 7.5"	2640	3.45
D4	L/S 7.5"	2640	3.73
D7	L/S 7.5"	2640	4.10

Ranger

Code	Description	Capacity	Ratio
72	open 6-7/8"	2200	3.08
74	open 6-7/8"	2200	3.45
82	open 7.5"	2750	3.08
84	open 7.5"	2750	3.45
86	open 7.5"	2750	3.73
87	open 7.5"	2750	4.10
91	open 8.8"	2750	3.27
92	open 8.8"	2750	3.08
95	open 8.8"	2750	3.55
96	open 8.8"	2750	3.73
97	open 8.8"	2750	4.10
98	open 8.8"	2750	4.56
F4	L/S 7.5"	2750	3.45
F6	L/S 7.5"	2750	3.55
F7	L/S 7.5"	2750	3.73
R5	L/S 8.8"	2750	3.55
R6	L/S 8.8"	2750	3.73
R7	L/S 8.8"	2750	4.10
R8	L/S 8.8"	2750	4.56

(Note 4.56 geared axles '99-up are 31-spline)

Explorer

Code	**Description**	**Capacity**	**Ratio**
41	Open 8.8"	3200	3.27
44	Open 8.8"	3200	3.73

45	Open 8.8"	3200	3.55
D1	L/S 8.8"	3200	3.27
D2	L/S 8.8"	3200	4.10
D4	L/S 8.8"	3200	3.55
D5	L/S 8.8"	3200	3.73

L - Limited Slip Differential
C - Conventional Differential

Code	Ratio
41	3.27
43	3.08
42	3.45
44	3.73
45	3.55
47	4.10
72	3.08C
74	3.45C
82	3.08C
84	3.45C
85	3.55C
86	3.73C
87	4.10C
89 (1992-1998)	4.10C
89 (1999-2001)	4.56C
91	3.27C
92	3.08C
95	3.55C
96	3.73C
97	4.10C
F4	3.45L
F5	3.55L
F6	3.73L
F7	4.10L
K6	4.10L
D2	3.45
D4	3.73L
D7	4.10
R5	3.55L
R6	3.73L
R7	4.10L

Lockers:

A trucks off-road performance can be greatly enhanced using a locker. There are differant ways that you can lock the rear end. (1) An air locker (Expensive) solidly lcks the rear end together using a small air-compressor attached to a locker in the differential. (2) a spool (Not Recommended) solidly locks the rear axles but should only be used for off-road competition since it doesn't let the axles turn at different speeds while cornering. (3) A Lincoln Locker (Same as spool) is simply welding the spider gears in the differential together. (4) A Detroit locker replaces the whole carrier and unlocks when turning. (5) A Lock-Right is the most popular because it replaces the existing spider gears, unlocks while turning, is affordable, and doesn't require setting up the ring and pinion like a Detroit Locker would.

Axle Truss:

An Axle Truss should be considered to protect your Axle from bending during serious off-road use, particularly if you like doing something silly like "Jumping" your truck. Desert racers in particular should have one of these because getting airborn is "normal use" for them. For most people the additional strength added by a truss is cheap insurance against damaging an expensive axle A slight bend in an axle tube will quickly wear out the axles shafts and bearings may damage the differential itself as well as cause distinctive wear to your expensive offroad tires. And of course serious bending of the housing can cause the axle to break the axle leaving you stuck and in possession of a hefty towing bill.

The only downside to an axle truss is that it will reduce clearance between the ground and the axle, but the clearance reduction is well worth the protection from bending an expensive axle assembly.

The only commercially made axle truss for Rangers and Bronco2's that I am aware of is made by James Duff and can be seen in their online catalog <http://jamesduff.com/broncoII/trusses.html> and their price ($80 at the time I'm writing this) is far below what you could expect to pay to have one custom made.

Gear Ratios:

If your considering a change in your gear ratio you should use the 'Off-Road Calculators' on the main page of this website.

Ford 9-inch:

If you really want a 9-inch rear axle you can swap in one from a late 1970's Lincoln Towncar which has a width of 57-inches. The spring pads will have to be relocated to the top of the axle and the driveshaft will need modified to accept the larger U-Joint. Currie Enterprises (714-528-6957) will custom make a Ford 9-inch to your specifications.

History

Ford began using the 8.8" axle in Rangers circa 1986 on "incomplete vehicles" aka "chassis cabs" (as mentioned above), but the 8.8" axles only became common in Rangers with the introduction of the 4.0L V6 in mid-1990. It began appearing in Explorers (and Mazda's Navajo twin) in 1991. It has also been used in 4.0L Aerostars (2wd ONLY, the 4.0 AWD Aerostars, strangely, are equipped with the 7.5" axle), From mid'84-up F-150 (Except for 5.4liter "Lightnings and Some 4x4 Supercabs which are equipped with the heavier-duty 9.75" rear axle) '84-1/2 on Full-size Broncos, and E-150 Econoline vans.

The 8.8 is also used in other Ford products such as Mustangs, Thunderbirds ("solid axle" '87-88 with 2.3 turbo engine and 5.0 "Sport" models), Crown Victorias and their equivelent Mercury and Lincoln products. However, because of their different suspensions, they make undesirable choices for swapping into a Ranger (unless you're looking to also swap to a four-link rear suspension for airbags and such).
An IRS version also appeared in the '89-97 Thunderbird, Mercury Cougar, (Though there is also a 7.5" IRS in some V6 cars), the Lincoln Mark VIII and finally
a very similar IRS suspension was adapted for the Mustang Cobra.

A wide range of gear ratios is available, from 3.08's up to 5.13's. An equally wide array of differentials is also available from open carriers to limited slips to lockers and spools.
8.8" axles can have either 28-spline or 31-spline axles.

All car applications use 28-spline axles, all truck applications use 31-spline axle shafts EXCEPT Rangers, which use 28-spline axles, however even Exceptions have Exceptions, FX4 Rangers 99-current with 4.10 or 4.56 axle ratios are built with 31-spline axles.

Gear sets are interchangeable between axles, regardless of the spline count. Differentials, however, are not.

What Comes With What?

For swapping into a Ranger, a 4.0L Ranger donor is the best choice, as it is in most cases a bolt-in affair. Explorers and others will work, check the notes below for specifics. Pre-1990 Rangers will need minor driveshaft modifications, or the driveshaft from the donor, as the driveshaft flange on pre-90's is smaller. All axles listed below have a 5 on 4.5 bolt circle.

8.8 Users:

Models	Years	Notes
Ranger 4.0	1990-1992	Width is same as other pre-93 axles, 28 spline 3.08 (4x2), 3.55, 3.73 and 4.10 (4x4) factory ratios Either limited slip or open differential 10" drum brakes
Ranger 4.0 B4000	1993+ 1994+	Width is same as other 93+ axles (1.5" wider than pre 93), 28 spline Ratios and differential options as noted above
Ranger FX4	2002+	Width is same as other 93+ axles, 31 spline 4.10's and Torsen limited slip from factory
Explorer Navajo	1990-1994	Width is 1.5" wider than 93+ Ranger, 3" wider than pre-93, 31 spline Spring perches must be fabricated and welded on top Stock spring perches can be used to lower the truck (like a flip kit) Shock mounts must be fabricated and welded on Very common to find ltd. Slip, usually 3.73 or 4.10 (4x4) gears
Explorer Mountaineer	1995-2001	Same as above, also has rear discs