Gear Ratio Calculator | Introdution to differentials and lockers | The basics of gears and why you would want to change them | Information on donations | Home

Gear Ratio Calculator

This form allows you to calculate final drive ratios as well as see a comparison of speeds and RPMs within operating ranges of the vehicle. This calculator is useful for planning your rig, allowing you to see what kind of performance to expect from different combinations.

Disclaimer: This form is only to be used for estimation purposes. Exact results of combining equipment may vary from the estimates provided in this form. The data provided here is done so as-is with no warranty expressed or implied.

Note: This calculator is continually being updated. The lists of available equipment will probably never be complete. If you find that the parts you would like to use are not yet listed, please send the information to me at grimmjeeper@gmail.com and I will do my best to include it as quickly as possible.

Detailed Instructions Here

Choose between SAE (feet/miles) and Metric (meters/kilometers) SAE

Save the entries in the form for when you come back later Save Form **Or clear them entirely** Clear Saved Data
Note that this will store the data locally on your computer. Nothing you do is tracked on the grimmjeeper server.

Step 1: Select transmission from the drop down list or, if it's not in the list and you know the gear ratios of your transmission, enter them below.

Aisin D478

Number of forward gears	6
1st Gear	5.13
2nd Gear	2.63
3rd Gear	1.53
4th Gear	1.00
5th Gear	0.81
6th Gear	0.72
7th Gear	-
8th Gear	-
9th Gear	-
10th Gear	-
Reverse	4.49

(●) Manual or Auto with lockup torque converter
( ) Automatic without lockup toque converter

Reset Form | Copy Transmission → | Copy Form →

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(●) Manual or Auto with lockup torque converter
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← Copy Form | ← Copy Transmission | Reset Form

Step 2: Select transfer case from the drop down list or, if it's not in the list and you know the gear ratios of your transfer case, enter them below.

NP241/NV241/NVG241

High Range	1.00
Low Range	2.72
Low 2 Range	-

Reset Form | Copy Tcase → | Copy Form →

Step 2: Select transfer case from the drop down list or, if it's not in the list and you know the gear ratios of your transfer case, enter them below.

NP241/NV241/NVG241

High Range	1.00
Low Range	2.72
Low 2 Range	-

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Step 3: Select underdrive.

None

High Range -

Low Range -

Reset Form | Copy Underdrive → | Copy Form →

Step 4: Enter axle gear ratio.

3.73

Reset Form | Copy Ratio → | Copy Form →

Step 5: Select tire size.

○ Inch 32.06
○ mm 814
○ Revs per mile 629
◉ P-Metric 255 / 75 R 17

Reset Form | Copy Tire Size → | Copy Form →

The following chart lists the final drive ratio of all combined gears (transmission, transfer case, underdrive, axle) in all possible combinations

Final Drive Ratio						
Gear	Underdrive Hi			Underdrive Lo		
	TC HI	TC LO1	TC LO2	TC HI	TC LO1	TC LO2
1	19.13	52.05	-	-	-	-
2	9.81	26.68	-	-	-	-
3	5.71	15.52	-	-	-	-
4	3.73	10.15	-	-	-	-
5	3.02	8.22	-	-	-	-
6	2.69	7.30	-	-	-	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
R	16.75	45.55	-	-	-	-

The following chart lists the crawl speed you will be going while the engine is at a given RPM. Crawl speed is calculated based on the lowest low range (transfer case and underdrive in low range) available in your rig.

Crawl speed at given RPM in feet per minute and miles per hour						
Gear	750 RPM		3000 RPM		6000 RPM	
	FPM	MPH	FPM	MPH	FPM	MPH
1	121	1.37	484	5.50	968	11.00
2	236	2.68	944	10.73	1888	21.46
3	406	4.61	1623	18.44	3246	36.88
4	621	7.05	2483	28.21	4966	56.43
5	766	8.71	3065	34.83	6130	69.66
6	862	9.80	3448	39.19	6897	78.37
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
R	138	1.57	553	6.28	1106	12.57

Copy RPM → | Copy Form →

Step 3: Select underdrive.

None

High Range -

Low Range -

← Copy Form | ← Copy Underdrive | Reset Form

Step 4: Enter axle gear ratio.

4.1

← Copy Form | ← Copy Ratio | Reset Form

Step 5: Select tire size.

○ Inch 32.06
○ mm 814
○ Revs per mile 629
◉ P-Metric 255 / 75 R 17

← Copy Form | ← Copy Tire Size | Reset Form

The following chart lists the final drive ratio of all combined gears (transmission, transfer case, underdrive, axle) in all possible combinations

Final Drive Ratio						
Gear	Underdrive Hi			Underdrive Lo		
	TC HI	TC LO	TC LO2	TC HI	TC LO	TC LO2
1	21.03	57.21	-	-	-	-
2	10.78	29.33	-	-	-	-
3	6.27	17.06	-	-	-	-
4	4.10	11.15	-	-	-	-
5	3.32	9.03	-	-	-	-
6	2.95	8.03	-	-	-	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
R	18.41	50.07	-	-	-	-

The following chart lists the crawl speed you will be going while the engine is at a given RPM. Crawl speed is calculated based on the lowest low range (transfer case and underdrive in low range) available in your rig.

Crawl speed at given RPM in feet per minute and miles per hour						
Gear	750 RPM		3000 RPM		6000 RPM	
	FPM	MPH	FPM	MPH	FPM	MPH
1	110	1.25	440	5.00	881	10.01
2	215	2.44	859	9.76	1718	19.52
3	369	4.19	1476	16.78	2953	33.55
4	565	6.42	2259	25.67	4518	51.34
5	697	7.92	2789	31.69	5577	63.38
6	784	8.91	3137	35.65	6274	71.30
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
R	126	1.43	503	5.72	1006	11.43

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The following chart lists the road speed you will be going while the engine is at a given RPM. Road speed is calculated based on the transfer case and underdrive being in high range.

Road speed at given RPM in miles per hour			
Gear	750 RPM	3000 RPM	6000 RPM
1	4	15	30
2	7	29	58
3	13	50	100
4	19	77	153
5	24	95	189
6	27	107	213
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
R	4	17	34

Copy RPM → Copy Form →

The following chart lists the road speed you will be going while the engine is at a given RPM. Road speed is calculated based on the transfer case and underdrive being in high range.

Road speed at given RPM in miles per hour			
Gear	750 RPM	3000 RPM	6000 RPM
1	3	14	27
2	7	27	53
3	11	46	91
4	17	70	140
5	22	86	172
6	24	97	194
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
R	4	16	31

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The following chart lists the RPMs your engine will be turning while driving at a given speed.

Road RPMs at given speed in miles per hour			
Gear	50	60	70
1	10027	12032	14038
2	5141	6169	7197
3	2991	3589	4187
4	1955	2346	2736
5	1583	1900	2216
6	1407	1689	1970
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
R	8776	10531	12287

Copy Speed → Copy Form →

The following chart lists the RPMs your engine will be turning while driving at a given speed.

Road RPMs at given speed in miles per hour			
Gear	50	60	70
1	11022	13226	15430
2	5650	6781	7911
3	3287	3945	4602
4	2148	2578	3008
5	1740	2088	2436
6	1547	1856	2166
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
R	9647	11576	13505

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